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DUBLIN JOURNAL

OF

MEDICAL SCIENCE;

EXHIBITING

A COMPREHENSIVE VIEW

OF THE

LATEST DISCOVERIES

IN

MEDICINE, SURGERY, AND THE COLLATERAL
SCIENCES.

VOL. XI.

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DUBLIN JOURNAL

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MEDICINE, SURGERY AND THE COLLATERAL

FOR THE

DUBLIN

PUBLISHED BY HODGINS AND SMITH

BY THE EDITOR

JOSEPH SMITH, ESQ., OF THE LONDON AND WESTMINSTER COLLEGE
MEDICAL AND SURGICAL INSTITUTION, AND
SMITH AND SON, OF LONDON.

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THE Editors of this Journal are most anxious to open a communication with the Editors of American Medical Journals. They request, however, that copies of the latter may not be sent by Post. This day they paid seventeen shillings for one Number of the Boston Weekly Medical Journal! and they have been several times obliged to refuse various American Journals forwarded to them during the last year, on account of the enormous postage demanded.

Our American friends will therefore desire their English correspondents to forward copies of their works intended for this Journal to Messrs. Hodges and Smith, through Longman, Rees, and Co., Paternoster Row, London.

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THE
DUBLIN JOURNAL

OF

MEDICAL SCIENCE,

1 MARCH, 1837.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Medical Problems.* By WILLIAM GRIFFIN, M. D.
Limerick.

(*Continued from Vol. X. p. 68.*)

IN those disorders which have gone under the name of spinal irritation, is there really any affection of the spinal cord or its membranes? Or in what tissue or organ does the complaint, such as it may be, absolutely reside?

The foregoing question is one which has been for some time in the course of slow but steady investigation; and I should not now, after the contributions which I have already given to the public on the subject, feel it necessary to bring it forward again, if it met with the same consideration from the reviewers which it has done from a very talented portion of the profession. I have only within these few days seen a notice of Dr. Marshall's new work on Spinal Irritation in the April number of the British and Foreign Medical Review. The writer of the article is evidently opposed to that doctrine, but speciously as he reasons

on the subject, his strongest objections seem to apply more to the irrelevance or inaptness of many of Dr. Marshall's cases than to the principle he advocates. I cannot indeed conceive any thing so unphilosophical as the habit, if I may so term it, with medical critics, of slighting all evidence and all legitimate induction, with respect to any new proposition in medical science, because it has been strained beyond its bearing by some over-sanguine inquirer—except the still less excusable one, of arraigning it at the bar of public opinion without bringing all the proofs which may make in its favour, as well those which make against it, to judgment. A question of the kind is not to be decided by the merits of a few cases, nor the reasoning of a single advocate. Whenever it is agitated at all, the whole of the known facts which make for or against the existence of any affection of the spinal cord or its membranes, in the complaint referred to, should be deliberately weighed, one against another, and then if the Scotch verdict, “not proven,” is returned, we should be, at the least, satisfied that it did not follow from any unfair prejudice. Without any reference to Dr. Marshall's work, I shall now just run over the general objections which the reviewer makes to the doctrine of spinal irritation, and afterwards bring forward the facts and arguments in support of it, from which the profession are at liberty to draw their own inferences.

In the first place he states, “not only is the nature of what is thought to be the primary pathological condition of the affection designated by the term spinal irritation, shadowy and indistinct, but the texture or part in which it resides is unknown.” Here are two very positive assertions made, and certainly, if we had no stronger reasons for inferring the seat of spinal irritation than we have for inferring its nature, very correct ones. We really know nothing at all of its nature, or the pathological condition with which it is connected, and I fear we are likely to remain a long time in our ignorance. The morbid anatomy of the disease never comes before us, and if it did, even frequently, I doubt much that we should detect any diseased alteration

which we could unhesitatingly connect with the symptoms. But is it absolutely necessary to our knowledge of the site of a disease, or to its successful treatment, that we should be acquainted with its precise nature, and be able to tell whether it arose from "*neuralgia,* or congestion, or inflammation, or something different from all these.*" What is the pathological condition of the brain in the several forms of mania, or in epilepsy, or in chorea? Are we to look for the morbid action and the proximate cause of the mental aberrations or other phenomena of these affections in other organs, because the brain cannot be examined while living, and furnishes no certain evidence of its having been the seat of disease after death? Are we to say, that it is no assistance or advantage to us, in our search for remedies, to view the brain or medulla oblongata as the part in which the morbid symptoms originate; or that we can derive no practical good from remedies which such a view of the relation of those symptoms might suggest?

If we consider for a moment the amount of our absolute knowledge of the nature of most diseases, we shall, I fear, find that it is much less than we imagine. What, for instance, is the nature of rheumatism? Whence arises its pain? Is it, as the reviewer asks of the pain in spinal irritation, from neuralgia, congestion, or inflammation? If it be from the latter, why is it not always got under by the remedies applicable to inflammation? and if it be neglected, why does it not run into suppuration? It will of course be answered, it is a specific inflammation—an inflammation *sui generis*. And what does *specific* and *sui generis* mean? Simply, that we know nothing at all about the matter; but that we see by the progress and effects of

* It would be interesting to learn, suppose it was universally admitted that spinal irritation arose from neuralgia, how far removed from "shadowy and indistinct" our knowledge of the pathological state of the spinal cord or its membranes would be. In what condition should we conceive the cord to be when affected with pain? Is our notion of it, if we can have any, at once converted into absolute knowledge by the term neuralgia?

remedies and results, that rheumatic is very different from common inflammation ; and this is what is called understanding the nature of a disease ! The fact seems to be, that a knowledge of the proximate cause, or even of the pathological condition of the affected part, however desirable, is not commonly necessary to efficient or successful treatment. We may have a very intimate knowledge of the seat, character, and habits of a disease, and of the influence of remedies, without understanding any thing of its nature or pathology.

But the reviewer asserts, that the texture or part in which this irritation resides is unknown, and here we are at issue. "When we examine its seat," he says, "we find pain vehemently excited by the slightest touch, which leads inevitably to the conclusion that it (the spinal marrow may or may not be consentaneously affected) is external to the vertebral canal. It may be in the ligamentous structure ; in the nerves after their exit from the osseous cylinder ; or even in the common integument." It seems surprising the reviewer should not perceive, that every word I have here quoted may be perfectly true, and yet leave the belief undisturbed, that the irritation or affection so named resides in the spinal cord. No one denies that the pain may be in the ligamentous structure ; or nerves, after their exit ; or common integument. It is only asserted, that such pain is connected with and dependent on a morbid condition of the adjoining portion of the cord, as it may be that pain in the knee, in disease of the hip joint, is dependent on irritation, or some disturbed condition of the crural nerve in the groin, whatever tissue or structure about the knee that pain may seem to exist in.

Again it is asserted, the highly sensitive state of the system in patients, generally females, affected with this disease, is calculated to throw doubts on our examinations. For though a person may shrink or shriek on pressing the spine, she may evince the same indications of suffering, if the hand be transferred to another and remote part of the surface. I have occasionally, though very rarely, seen this happen, but, even if

its occurrence was frequent, I cannot see how it makes against the conclusion, that the spinal cord is in a morbid condition; or how it even suggests a doubt on the subject, if we recollect that such a sensitive state of the surface only exists in parts corresponding to the part of the vertebral column which is tender to the touch, as in the abdomen or lower extremities when there is great soreness in the lumbar vertebra or sacrum, or in the chest or upper extremities when in the cervical or dorsal. And why should not irritation or disease at the great trunk of the nerves occasion increased sensitiveness in all their minute extremities, to the finest fibril as well as in any particular one? It seems to be insinuated, however, that the reports of patients in this state of nervous disease are not much to be depended on, especially if leading questions be put to them; but can it be for a moment supposed that those gentlemen who have been investigating this subject with such care and accuracy were thus misled: or that they would have ventured to claim the attention of the profession for opinions, founded on the misstatements of hysterical females. For my own part I required no other proof of the sincerity of my patients than the knowledge of anatomy and of physiology which they displayed. When a girl had pain of stomach, or at the sternum, (I mean in cases when these were the only symptoms present, and the whole spinal column was not tender,) she never complained as I ran my finger from above downward until I came to the seventh or eight dorsal vertebra; nor if her complaint was only at the umbilical or pubic region, until I touched the lumbar vertebra. If I examined the spine of another without knowing what she complained of, she never told me she had pain at the bladder when I pressed the cervical vertebra; nor at the neck when I pressed the lumbar; her report corresponded with the proper distribution of the spinal nerves issuing from the part pressed on. But I will give a table of 148 cases published in my work on Spinal Irritation, and if not supposed to be all fictitious they will afford matter for a few questions.

SUMMARY OF CASES OF SPINAL IRRITATIONS.

	CASES.	PROMINENT SYMPTOMS.
A.	28 cases of cervical tenderness : 8 men. 8 married women. 12 unmarried.	Headach, nausea or vomiting, face-ach, fits of insensibility, cough, dyspnœa, affections of the upper extremities. In two cases only, pain of stomach. In five, nausea or vomiting.
B.	46 cases of cervical and dorsal tenderness : 7 men. 15 married women. 24 unmarried.	In addition to the foregoing symptoms, pain of stomach and sides, pyrosis, palpitation. In thirty-four cases, pain of stomach. In ten, nausea or vomiting.
C.	23 cases of dorsal tenderness : 4 men. 6 married women. 13 unmarried.	Pain in the stomach or side, cough, oppression, fits of syncope, hiccup, eructations. In one case only, nausea or vomiting. In almost all, pain of stomach.
D.	15 cases of dorsal and lumbar : 1 man. 11 married women. 3 unmarried.	Pains in the abdomen, loins, hips, lower extremities, dysury, ischury, in addition to the symptoms attendant on dorsal tenderness. In one case only, nausea.
E.	13 cases of lumbar tenderness.	Pains in the lower part of the abdomen, dysury, ischury ; pains in the testes or lower extremities, or disposition to paralysis. In one case only, spasms of stomach, and retching.
F.	23 cases, all the spine tender : 4 men. 4 married women. 15 unmarried.	The symptoms of all the foregoing cases combined.
G.	5 cases, no tenderness of spine.	Symptoms resembling the foregoing.

In all making 148 cases ; twenty-six of which were males, forty-nine married women, and seventy-three girls.

Now, why is it, I would ask, if the complaints of patients suffering with spinal irritation are so fanciful, that none of those twenty-eight who had tenderness of the cervical vertebræ, or of the forty-six who had tenderness of the cervical and dorsal, or of the twenty-three who had tenderness of the dorsal only, by chance or design, never complained of pain in the lower part of the abdomen, loins, hips, pubis, or lower extremities, or of ischury, or dysury, or hysteralgia? And on the other hand, why is it that none of the thirteen patients affected with lumbar tenderness complained of nausea, or pain of stomach, or cough, or oppression, or affections of the upper extremities.*

Leaving these queries for consideration, I may yet notice that the reviewer is in error, if he imagines those who advocate the doctrine of spinal irritation were led to its adoption by the discovery of tenderness of the spinal column. This tenderness is found to be very generally an accompanying symptom of the disease, but by no means a necessary one. It is wanting in many cases in which the result proved organic disease of the cord was going on, and it is sometimes absent in cases of mere irritation, not only in those in which the internal affection has continued after the tenderness has been removed by remedies, but in which it never at any time existed. Thus we often find in cases manifestly of this nature, where yet there is no soreness of spine, that pain of side, or chest, or abdomen, or cough,

* Dr. Marshall thinks the distinctions here drawn, in which certain affections are referred to certain portions of the cord, unnecessary, and not always correct; for instance, he has met with cases in which the patient complained of the chest or upper extremities, when the tenderness was only in the lumbar vertebræ. I very much doubt whether Dr. Marshall has come to this conclusion with sufficient accuracy. He may have been led into a mistake by the fact, that when once the whole spinal cord has been engaged in disorder, as in those protracted cases, although in the progress of such cases the tenderness may diminish or disappear at one point, and become more acute at another, the whole cord is still in an over-excited and unhealthy state. Pressure then on a lumbar vertebra may possibly produce symptoms affecting the head or chest, even where there is no cervical or dorsal tenderness.

or oppression, is produced by pressure on a particular vertebra. Tenderness of spine is a symptom of value as regards some points of diagnosis, but the doctrine and chief proofs of the existence of a state of disorder in the spinal cord called irritation, preceded its discovery, and are independent of its presence.

It is in the physiological laws of the nervous system, and in physiological reasoning, that the main evidence for the doctrine is to be found. Without entering very deeply into the subject, I may refer to the admitted fact, that irritation or disturbance at the trunk or origin of a nerve, manifests itself not so much at that trunk or origin, as by pain, or disorder of function at its extremity or in the distant organ to which it is distributed. This is perfectly familiar to us when patients complain of pain in the knee or ankle. If there be no very manifest sign of disease in these parts, we at once recollect the physiological law referred to, and make pressure behind the great trochanter, or in the groin, to ascertain the state of the hip joint, and whether there be any cause of irritation then affecting the trunks of the nerves. And why, let me inquire, in the name of common sense and fair reasoning, when patients complain of pain in chest or abdomen, and we have any ground for doubting the existence of internal organic disease, do we not think of the spinal nerves, and make pressure in like manner as near the trunk as possible of the pair or set distributed to the pained part? Simply, because we have never been in the habit of doing it; and for no other reason that man can conceive!

I might rest the whole case on what I have just stated, but is there really no weight at all in the striking analogy existing between the disorders occasioned by irritation, and those by organic disease of the cord? In what we suppose to be irritation of the cord, we have simulations of every known disease of every organ of the body, and in its organic disease I need only refer the reader to Abercrombie's work to shew that the same results are observable. The close resemblance of the phenomena presented by organic affections of the cord in

particular instances to those supposed to be occasioned by irritation, is however, much more convincing, than any offered to us in the general similitude of character in all of them. But to such I can now only briefly allude.

One of the reviewer's principal objections to our doctrine is derived from the inefficacy of local treatment, and certainly he has put this forward in a way, which it would require no common ingenuity to answer, assuming the inefficacy, whether the patient be cured by the local treatment or not. If the patient be cured simply by local bleeding or counter-irritation near the spine, he says, it is often so difficult to distinguish between physical amelioration and mental oppression, that such evidence is, to say the least of it, of very doubtful validity; and if cured by this treatment, in conjunction with remedies of a more general nature, as tonics, change of scene, air, &c., the darkness becomes still more impracticable, or the little light that shines is unfavourable to the doctrine, I suppose, because, if local treatment was of any avail, the other remedies would have been unnecessary! Is this the manner John Abernethy would reason on the cure of an ulcerated leg, or that Sir Benjamin Brodie would argue on the treatment of a rheumatic knee joint. That I may not be charged with misrepresenting the reviewer's sentiments, I quote his words towards the conclusion of his critique. Dr. Marshall, he says, "has erred in not limiting his measures to the assumed great original of all the symptoms, *and thus proving the doctrine*; or he has erred by not omitting those local measures, *and if successful thus aiding to disprove it.*" Clearly assuming it as an established principle that local diseases are to be cured by local treatment alone, and that if it be necessary to employ general remedies, there must be great doubt whether any disease could have existed in the part supposed to be affected! If this principle was applied to the cure of a severe rheumatic affection of the eye or of the knee joint, we might, without any violence, on witnessing the failure of our leeching and blistering, and the

success of a few doses of colchicum, believe, that the sclerotic coat in one case, and the synovial membrane in the other, were in the most perfect health ; and in short that we had made an utter mistake in supposing there was any disease of the eye or of the knee whatsoever.

To take even the extreme cases put by the reviewer, in which local remedies do no good whatsoever, but where constitutional treatment is attended with benefit, and I admit very many such are to be met with, what, I would ask, is the legitimate inference ? May it not be answered, that although the efficacy of local treatment is some evidence of the seat of a disease, its inefficacy, or the after success of constitutional treatment, proves absolutely nothing on the subject, except the obvious fact stated, that a disease, assumed to be local, has yielded to constitutional treatment, after having resisted local remedies. That irritation of the spinal cord, viewed as a local disease, is not singular in this respect I need offer no other proof, than those given by Mr. Abernethy in his work, " On the Constitutional Origin of Local Diseases." To refer, however, again to rheumatism, are we to infer, when we have cured affections of the hip, knee, or ankle by colchicum, turpentine, or guaicum, after the failure of local remedies, that no disease whatsoever existed in the hip, knee or ankle ?

If it was not a melancholy consideration to any humane mind, it would be amusing to watch and contrast the endless changes and fickleness of medical opinion from year to year. Mr. Abernethy made his name celebrated through Europe by directing the attention of medical men to the influence of constitutional treatment on local disease, till local remedies fell almost into utter disuse. But now the effect of local remedies is made the test by which we are to determine whether there be any diseases of the part supposed to be effected or not ; so certain is the influence of unaided local treatment deemed to be !

I am disposed frequently to refer to rheumatism in illustrating by analogy the habits or character of spinal irritation.

There is a strong resemblance in many instances between the two complaints ; so much so indeed, that the latter is frequently mistaken for and treated as the former. Spinal irritation, like rheumatism, is often very limited in extent, and strictly a local disease ; in such cases it is almost always benefited by local treatment. In other instances it is more general in its attack, affecting nearly the whole of the spinal cord, and, like general rheumatism, partaking more of the character of a constitutional affection. In the very early stage of such an attack as this much may be done by judicious general and local treatment in either disease, but in consequence of its extreme violence, or of mismanagement, it runs on until the system becomes thoroughly imbued with it, or until it assumes a chronic form, it becomes altogether intractable. In this state, however, there is a manifest difference between rheumatism and spinal irritation as regards the facility or difficulty of cure. In the former complaint we are acquainted with several general remedies which are known to possess a specific influence over the prevailing diathesis. In the latter we as yet know of none, and are accordingly compelled in such cases to depend on symptomatic treatment, combined with strict attention to improvement of the general health. In all cases of spinal irritation indeed, as of rheumatism and most other diseases, the cure is best attained by a judicious combination of both local and constitutional remedies ; and if this be “polypharmacy,” as the reviewer designates it in contempt, the term and the reflection applies more forcibly to the present state of medical science generally, than to any which has been advanced on the subject of spinal irritation.

In freely admitting the frequent inefficacy of local treatment alone in cases of protracted spinal irritation,* the experienced

* It seems to be altogether overlooked by the reviewer, that spinal irritation is very generally, if not always a symptomatic disease. In highly nervous temperaments, and where there is a strong hereditary disposition, it may occur as an idiopathic affection, but it more usually arises from disorders of the digestive or uterine

reader will at once perceive I only assent to a fact, true of almost all chronic diseases, and especially true of chronic functional affections, or to speak more clearly, of chronic disorder of the nerves of organs. How often have I not seen tormenting dyspepsia, or chincough, after resisting all direct remedial measures, banished, as if by a charm, on mere change of air. How wonderful have been the recoveries I have seen it effect even in mesenteric disease, and in affections of the lungs under similar circumstances ; and is the influence that so remarkably alters the functions of organs, and so strangely affects the structural changes going on in them, to be set aside in the cure of disorders of the great trunks from which they are supplied with nerves ? Or if, on the other hand, it cannot be set aside, must we conclude that great trunk is not the seat of disease, nor any other organ or part of the human frame that we know of ?

In addition to any thing I have already offered in favour of the doctrine of spinal irritation, it seems to me to be no slight evidence of its truth, that it has explained to us the dependence of certain symptoms not understood before ; and furnished us with new and more correct means of forming our diagnosis in many diseases. In some affecting the chest or abdomen, for instance, in which pain or tenderness on pressure is a principal symptom, it is of importance to know whether this pain or tenderness be superficial or deep-seated—be in the spinal nerves distributed to these parts, or in the deep-seated viscera ; and this knowledge is now as easily attainable by pressure on the spinal nerves, as a knowledge of the cause of pain in the knee may be by pressure behind the trochanter, or in front of the hip-joint. When there is tenderness of abdomen in fever, or in presumed inflammation, now, we may at once ascertain whether it be a

functions, or from chronic structural disease. When arising from the latter cause, which is not probably removable, the spinal irritation is necessarily incurable, however limited in extent it may be. Of this nature are the neuralgic complaints in phthisis, diseases of the heart, abdominal tumours, caries of the vertebræ, &c.

formidable symptom or not ; when there is pain below the breast, or in the side, or at the sternum, we can, without referring to the stethoscope, state, whether it be symptomatic of phthisis, or any other affection of the lungs ; and when there are palpitations, oppressions, faintings, angina pectoris, and other symptoms of diseased heart, we can very generally set the patient's mind at ease on the subject ; and all this by a simple examination of the spinal column.

For myself I cannot express the advantages which I have derived in forming a diagnosis in obscure cases, from the study of this subject. I have at the same time witnessed, and am daily witnessing my seniors in the profession, men of high qualification, of long experience, and eminent in reputation—men “ of that very thinking and practical class,” who it is stated by the reviewer, remain uninfluenced by the doctrine I have discussed, committing the most egregious mistakes with respect to the nature of the diseases they were called upon to treat, and which the slightest knowledge of that doctrine would have revealed to them. One gentleman was treating a lady for some nervous symptoms, with debility, tightness of chest, yawning, &c. She happened to faint during his visit on some occasion, and he was removing her to the sofa, when she gave a loud scream. Her back it appeared had been hurt by the pressure of his arm in supporting her. This led to an examination of the spine, when some of the vertebræ were found so exceedingly tender, that the doctor thought that there must have been a caries of the bones, and believed he had now discovered the whole cause of his patient's general delicacy. Issues and a recumbent position were immediately ordered ; but she went from bad to worse, until her friends became so alarmed, that they took her to Dublin, where the affection was understood, and treated properly. Another medical gentleman, in high repute, had been for years tormenting the mother of a young family with leeches, blisters, tartar-emetic ointment, and digitalis, for disease of the heart. She suffered dreadfully at times

with palpitation, oppression, and other nervous symptoms, which were little benefited either by the medical treatment, the confinement, or the rest to which she was subjected. This poor lady had the nature of her complaint fully explained to her ; could tell what hypertrophy was, and how the little valves at the mouth of the aorta had ossified, and almost shut up the ventricle. She could actually hear the whizzing of the blood as the heart endeavoured to project it through the contracted chink : and entertained little or no hopes of recovery. After years of suffering had elapsed, her husband's affairs, fortunately for her, obliged him to remove to a distant climate. She accompanied him of course, but not without much misgiving at being compelled to leave the doctor behind her. Wonderful, however, to relate, before she had been long on her voyage, the valves began to return to their natural state, the increased size of the heart to diminish, and all the disagreeable symptoms which had annoyed her so long to disappear ! A third medical gentleman was called to a case of presumed inflammation of bowels. He bled and gave relief ; the complaint recurred, and he bled again largely ; again relief was obtained, and again there was a recurrence even to a more violent degree than before. Eventually the case ran into a form of chronic nervous disease, from which she did not recover for months. It was one of pure irritation of the spinal cord.

Very lately a lady came from the country to consult me about a pain in her side and upper part of the chest, sometimes under one clavicle, sometimes under another, and sometimes at the sternum. She suffered so much, that she frequently passed successive nights sitting up in the bed, the pains being made worse by the recumbent position : they were occasionally accompanied by tightness of chest and oppression. When she was first attacked, about six months before, the pains were more general, affecting the extremities, and resembling rheumatism ; for which complaint, after some treatment, she was sent to the sea-side to take hot baths. After taking some baths, she be-

came much worse, and was seized with violent pain in the chest, cough, and general illness. For these symptoms she was bled and blistered, which gave her considerable relief, but in five or six days the complaint returned almost as severely as before. The physician who had bled her now informed her that her lungs were affected, and that if she did not immediately leave the sea-side, she would run into rapid consumption. On returning home, she saw her former medical attendant, who would not admit that her lungs were affected, but said she was labouring under chronic bronchitis. These differences in opinion induced her to come to Limerick and consult me. Though she had been ill nearly half a year, I found her pulse perfectly natural, her skin cool, her tongue clean, and but little cough: her appetite was pretty good; in fact she said she would be quite well only for the pains, which tormented her so continually, that she feared she would never get rid of them. She told me she had been two or three times attacked with a swelling in the neck and upper part of the chest since this complaint affected her; that it was said to be erysipelas by the medical attendant; and lasted four or five days. On examining the spine, I found the lower cervical vertebra, and almost all the dorsal, exceedingly tender to the touch; some were more so than others, and when pressed on, the pain shot forward to the part at which she usually complained. The lady was about fifty years of age, and had passed her catamenial period: her bowels were disposed to be confined, unless she took medicine: when not in pain she slept well. I directed an application of leeches to the spine twice, at intervals of three or four days; after which she was to take a quinine mixture two or three times a day, and rub tartarized antimonial ointment to the back. She became better after the leeching and ointment than she had been for months, and in a fortnight felt quite recovered. At the end of two or three months, however, she got a relapse, and came to town again to me. She was now leeches and blistered; after which, I directed a plaster of opium,

camphor, and belladonna to be applied to the chest and spine ; and a mixture of quinine and valerian to be taken three times a day. In a week I sent her home nearly well again.

Even though there should be frequent relapses in cases of this description, it is to be attributed rather to the early error in treatment, than to the inefficacy of that which is eventually resorted to. I have always remarked, that if these nervous attacks are not arrested at the very onset, they are apt to become a sort of habit with the constitution, and to return as periodically as sleeping or waking. When they are of any considerable standing, it is indeed only by the utmost attention to the general health, change of place and of air, with perhaps local friction or other such remedies, that any success can attend our efforts to remove them.

Before concluding this paper, I may remark, that the reviewer speaks of the doctrine of spinal irritation as a *theory* ; and perhaps, as it applies to particular cases, it may be considered so. It is, however, not advocated solely in reference to any particular one, or any ten cases, but to a multitude of undeniable facts which are adduced in proof of some disorder, call it irritation or what we will, existing in the spinal cord or its membranes. I do not, indeed, wish to see the opinions I have offered received any farther than they can be considered a pure doctrine of facts.

It is a fact, that there are disorders incident to the frame which we have not heretofore been able, satisfactorily, to refer to any particular organ, but all the phenomena of which are now readily explained, by supposing the morbid cause to exist in the spinal cord or its nerves.

It is a fact, that we might infer the possibility of such disorders, in disease of the cord, from our knowledge of its physiology, even though they had never occurred. Mr. Abernethy, in fact, inferred their occurrence merely from the discoveries of Le Gallois.

It is a fact, that affections of the cord will produce all the

several disorders attributed to spinal irritation, as any person may convince himself, by reference to Dr. Abercrombie's work on diseases of the brain and spinal cord.

It is a fact, that in these disorders in which there exists such strong presumption of spinal disease, tenderness of the spine, on pressure, is almost invariably found ; that such tenderness very commonly corresponds with the situation of the trunks of the spinal nerves, distributed to the distant, pained, or affected parts ; that pressure in such situation very often excites or increases the pain or affection in those parts ; and finally, that remedies applied in such situation often give very immediate relief, and sometimes effect a permanent cure.

I cannot but believe that the foregoing observations, which have run out to a length I did not at all intend, must lead to one of two inferences, either that the reviewer took a very superficial and prejudiced view of the subject, or that he had not studied it sufficiently. I am only sorry the British and Foreign Medical Review, conducted by its present able and distinguished editors, and so well calculated, in other respects, to advance medical science in this country, should, at its very outset, give ground for a suspicion of either nature : but the doctrine, whose merits it has undertaken to criticize, is, even imperfect as our knowledge of it may be, of too much practical importance to admit of its being so complacently set aside in a discussion on some of the least appropriate cases in Dr. Marshall's work.

ART. II.—*Remarks on Fracture of the Neck of the Thigh-bone, external to the Capsule.* By JAMES DOUGLAS, Member of the Faculty of Physicians and Surgeons, Glasgow, and Lecturer on Anatomy.

IN perusing the last number of the Dublin Journal, I was much gratified with Mr. Porter's account of the dissection of a very

recent case of fracture of the neck of the thigh-bone within the capsule, and with his remarks upon the senile alteration of structure which predisposes to that accident. I wonder, however, that Mr. Porter's opinions respecting the difference of capability of union in fractures within and without the capsule are so little settled; and I am particularly surprized at his concluding sentence, viz. "that there is *no evidence* as yet to demonstrate by dissection a perfect bony union in a subject of any age, or where the fracture has occupied any situation *either within or without* the capsule." I agree with Mr. Porter that there is no evidence of bony union within the capsule, but there is most certainly evidence of bony union of fractures without the capsule, all of which necessarily implicate the great trochanter; and in corroboration of this statement I beg to submit the following cases:—

I. An elderly man was admitted into the surgical wards of the Glasgow Royal Infirmary, on account of fracture of the neck of the femur, external to the capsule. His limb was put up in Desault's splints, as is the constant practice in that hospital in all fractures of the thigh, and at the end of six weeks it was found firm. Still on rotation a crepitus was perceived at the inner part of the thigh-bone, and a suspicion being excited that all was not right, the splints were re-applied, and after a considerable time he was dismissed, because able to walk, although this crepitus had not disappeared. Shortly after this he was brought up to the wards of which I had charge, as physician's clerk, *in articulo mortis*, it was said from cholera, and died immediately after being put to bed. Learning that this was the same individual who had been above stairs with the fractured thigh, I speedily possessed myself of his femur, the state of which is as follows:—

The bone has been split into four pieces, the neck being detached from the shaft immediately beyond the intertrochanteric lines, and depressed about half an inch below its proper level, though still retaining its natural obliquity. The

greater trochanter is split from above and before downwards and backwards, and the loose portion is thrown a little inwards upon the neck. The lesser trochanter is drawn a little upwards and forwards. The fractured surfaces of the neck, shaft, and great trochanter, are firmly united by bone, except at the top of the great trochanter, where an opening exists between the two pieces, leading downwards into the medullary cavity. The trochanter minor is supported by a buttress of new bone, to which it is connected by ligament only, and on which it is still moveable. It was this motion which produced the crepitus after the other fractures were united, and led to the re-application of the splints. The preparation is preserved in my museum, and bears a striking resemblance to the specimen figured by Mr. Colles in the *Dublin Hospital Reports*, vol. ii. fig. 3, only that the neck is not driven across the shaft.

II. As another proof of cure of fracture external to the capsule, I may adduce the following case, which was successful in very unfavourable circumstances. Near the end of the year 1834, a woman, aged 68, of intemperate habits, was admitted into the wards where I was then house surgeon, with a fracture of the neck of the left femur, splitting the trochanter major, produced by a fall upon the side. I put up the limb in the straight position. She was seized with delirium tremens, and pulled off the whole apparatus once or twice, but was at length calmed by strong opiate enemata. In a fortnight it was found that a bed-sore had formed over the sacrum, and the surgeon, Dr. M. S. Buchanan, was afraid of her sinking under it, and advised the removal of the splints. On taking them off, I found that callus was already effused and that the limb was stiffening, and I begged Dr. Buchanan to allow me to replace the apparatus for another week, and to take his chance of curing the bed-sore afterwards. He consented; the limb was again put up, and on the twenty-first day was so firm as to enable us to turn

the patient on her right side and attend to the sore, and she afterwards got perfectly well.

III. I shall relate another case in which I had an opportunity of examining the parts at a pretty early period after the accident. A man was admitted into the hospital on account of a fall on the left buttock : he complained of pain and difficulty in walking, but no fracture was detected. He was seized with some internal affection, of which I can give no account, as I never saw him under it, and he died at the end of a fortnight. I was requested to perform the inspection, and possess the preparation. The capsule of the hip joint was entire ; and the bone was not in the least displaced. From the top of great trochanter a fracture was found running downwards and inwards ; the lines before and behind the neck meeting at an acute angle at the trochanter minor, and passing through the external lamina of the bone in such a way, that the neck remained wedged in the shaft ; and no crepitus could be produced. The outer part of the top of the great trochanter was also detached. In front, the line of fracture passed higher on the neck than the anterior inter-trochanter line, so as to tear slightly both the periosteum and the reflected synovial membrane. In consequence of this, the membrane was inflamed, and contained some thick fluid of a dirty red colour. Not the slightest progress had been made towards union. The only morbid appearance in the cavities illustrates the sympathy between synovial and serous membranes, viz. about two ounces of thick reddish fluid was found in the pericardium, very similar to what existed in the capsule of the hip joint.

I had the other day the opportunity of examining the femur of a female aged eighty, who was brought to the dissecting room ; and I found the appearance of the cancellous texture of the neck to correspond exactly with Mr. Porter's description. Besides, the compact lamina of the lower edge of the neck was much thinner than it ought to have been ; and indeed, in the

middle of the former, it seemed also to be relaxed, for it crashed under the saw when making a transverse section, in a way which I never felt before. I was in search of alteration of the angle of the neck by absorption, but was disappointed.

ART. III.—*On the Length of the Umbilical Cord and its mechanical Influence upon Parturition.* By F. CHURCHILL, M.D., Physician to the Western Lying-in Hospital, and Lecturer on Midwifery at the Richmond-Hospital School.

[Read at a Meeting of the College of Physicians December 19, 1835.]

MUCH has been written about the structural peculiarities of the funis, with its functions during embryonic life, and in addition, certain mechanical effects have been attributed to it under certain circumstances. It is to this latter point that I would beg the attention of this meeting, as it appears to me that certain errors have crept into these statements, which a little more minute observation would have prevented.

Almost all authors who touch upon the subject agree, that the ordinary length of the cord is tolerably regular, but that many instances of preternatural shortness or extraordinary length are observed. Some give examples of such from their own experience, others merely copy or quote their predecessors. None seem to have undertaken any extended examination of the subject. Again, every one knows that the cord is often twisted round the child's neck, so as to diminish its entire length, and much evil is said to result from this shortening. We are told that it may render the labour tedious, by retracting the head of the child at the termination of each pain; that the life of the child may be endangered by its being put upon the stretch when the fœtus is expelled; that there is a risk of the too early and forcible detachment of the placenta, or of inversion of the uterus, if the child be rapidly driven through the passages with the funis thus shortened, and we are impressed with the necessity of uncoiling it as soon as possible, by slipping it over the child's

head or shoulders. If the premises be true, the latter conclusion undoubtedly follows, but it is somewhat remarkable, that more than one of the authors who give us this direction and for these reasons, add, that in cases when it cannot be effected, it is no great matter, as the child will be expelled notwithstanding, and probably without mischief. I shall, however, defer any further observations until I have quoted a few statements on the subject from our highest authorities, commencing with Smellie, who remarks of the funis umbilicalis, (*Midwifery*, vol. i. p. 81,) “that it is commonly four or five hand breadths in length, sometimes only two or three, and sometimes it extends to the length of eight or ten.” When treating of lingering labours, (p. 137,) he observes, “although the head is pushed down into the pelvis, and the vertex employed in opening the os externum, the forehead being lodged in the cavity formed by the coccyx and lower part of the sacrum, yet *frequently* after the labour pain is abated, the head is again withdrawn by the navel-string happening to be twisted around the neck.” In his collection of cases (vol. ii. p. 230,) he gives one (Case IV.) when the cord was not above two hands’ breadth, (about ten inches long, I suppose,) but no ill consequences followed; another where it was twisted four times round the neck; and a third in which it was twisted three times round the neck, and once round the arms.

Mr. White of Manchester, in his treatise on the Management of Lying-in Women, (p. 106,) speaks of the stretching of the cord when shortened by being twisted round the neck, and in explaining the inutility of interference he says, “But should the navel-string be wrapped round the infant’s neck and shoulders, nay, should it even be drawn tight, the child will not for a considerable time suffer, as the circulation in it does not stop before it has undergone a very great distention.”

In Perfect’s cases, we find two where the cord was not above ten inches long, not coiled round the neck, and offering no impediment to delivery. He quotes a similar case from Burton. In another case the funis was twisted four times round the neck,

but the length is not stated. Dr. Alexander Hamilton (quoted by Perfect) observes, “that the funis may be faulty from its too great length, or the contrary. Its extraordinary length, by forming involutions round the child’s neck or body, sometimes proves the cause of protracting the labour, but as this can only happen when the cord is of an *uncommon* length, there is generally enough left to admit of the exit of the child with safety.” He further adds, that “it is time enough in general after the child is born, to slip the noose over the head or shoulders, and there is seldom occasion to divide the cord in the birth, (as recommended by Chapman and Burton,) a practice that may be attended with trouble and hazard.”

Denman (Midwifery, p. 133, last edition) says, that “there is much variety in the length of the cord, it being in some not more than one foot, in others exceeding four or six feet.” Again, (p. 229,) speaking of difficult labours, he enumerates shortness of the umbilical cord as one of the causes: “it may be naturally very short,” he observes, “or it may be rendered so accidentally, by its circumvolution round the neck, body, or limbs of the child. Whichever of these is the case, the inconvenience produced at the time of labour is the same; that is, the labour may be retarded; or perhaps the placenta may be loosened prematurely; or the child may, in a tedious labour, be injured, or in danger of being destroyed by the tightness of the ligature drawn round its neck, or by the mere stretching of it, as this must necessarily lessen the diameter of the vessels, if not perfectly close their cavity. But the two latter consequences very seldom follow.” He throws a doubt upon the statement of others, that inversion of the uterus may be thus caused.

Dr. Burns of Glasgow, (p. 195, last edition of his work on Midwifery,) says, “that the cord at the full time varies in length from six inches to four feet, but its usual length is two feet. When it is too long it is often twisted round the neck or body of the child.” And again, at p. 427, he enumerates this among the causes of tedious labour: “by shortness of the

umbilical cord, or still more frequently by the cord being twisted round the neck, the labour may be retarded, particularly the latter end of the second stage. The cord may be on the stretch, but it never happens that it is torn, and very seldom that the placenta is detached. After the head is born, it is usual to bring the cord over the child's head, so as to set it at liberty, and this is very proper, when it can easily be done, as it prevents the neck from being compressed with the cord in the delivery of the child, by which its respiration, if it had begun, would be checked, or the circulation in the cord be obstructed. Some have advised that the cord should be divided after applying the double ligature, but this is rarely necessary, for the child may be born even although the cord remains about the neck."

Neither Dr. James Hamilton jun. nor Dr. Dewees, appear to recognize this shortening as having any influence upon labour, and no cases bearing upon the question are related by Dr. Ramsbotham.

Dr. Blundell (in his "Principles and Practice of Obstetrics," p. 106,) remarks, "an average measure of the cord may be about two feet; sometimes the cord is very short. I know not that any serious inconvenience results from the extraordinary brevity of the funis; excepting, perhaps, that if you lay hold of the child, and drag it too far from the mother immediately after birth, you incur the risk of prematurely detaching the placenta by a sudden pull, &c. &c.

In his recent very valuable work on Practical Midwifery, Dr. Collins, when speaking of natural labour, (p. 6,) remarks, "in all labours, when the head is expelled, the finger should be passed upon the child's neck to ascertain if the funis be around it, which is often the case, and if so, when practicable without using force, it should be brought over the head, or when this cannot be readily effected, passed back over the shoulders. If this be not attended to, the child may be injured where the funis presses strongly upon the neck, both by the cord acting

as a ligature and having its circulation checked, also, in consequence of the funis being thus shortened, the placenta might be dragged away, causing serious injury to the mother, either by inducing hæmorrhage, or possibly by inverting the uterus." Dr. Collins does not mention this shortening as one of the causes of tedious labour.

The German authors appear to be too well and minutely acquainted with the progress of natural labour, to mistake the normal propulsion and recession of the head just before its escape through the external outlet, for an untoward circumstance arising from this condition of the funis; but some of them (Carus, Siebold, &c.) attribute delay and perhaps danger to its being coiled round the body or shoulders, because of the addition to the diameter of these parts.

Joerg mentions that the cord is often very short naturally. Siebold, in his Reports of the Marburg Lying-in Hospital, relates that the shortest cord met with was thirteen inches; the longest forty-two. Carus, in his Gynæcologie, observes, that it is very rare for the navel string to be so short as not to admit of the exit of the child, and that where it is so, it is generally connected with some malformation of the foetus, and that the effects would be its rupture, or the premature detachment of the placenta.

Dr. Steinhal, of Berlin, saw a case where the cord was preternaturally short, (he does not mention the length,) and to this cause he attributes inversion of the uterus.

So far we have found the præternatural shortness of the funis stated as a fact, but no details are given by which we may judge of the comparative frequency of its occurrence. Indeed the opinion that two feet is the ordinary length of the cord, which is advanced by many, does not appear to have been founded upon records of numerous measurements.

The only details I can discover are in Siebold's Journal of Midwifery, by Dr. Adellmann of Fulda, and Professor Henne of Königsberg.

Out of 49 cases Dr. Adelman found that

In 3 the length of the cord was 14 inches.

6	....	....	15
12	....	....	16
1	....	....	17
17	....	....	18
4	....	....	19
5	....	....	20
1	....	....	21

Out of 130 cases Professor Henne found that

In 1 the length of the cord was 13 inches.

7	....	....	15
2	....	....	16
4	....	....	17
10	....	....	18
8	....	....	19
16	....	....	20
11	....	....	21
21	....	....	22
9	....	....	23
13	....	....	24
8	....	....	25
3	....	....	26
4	....	....	27
4	....	....	28
1	....	....	29
2	....	....	30
3	....	....	31
1	....	....	32
2	....	....	34

For my own satisfaction, and as a test of the correctness of the authorities I have quoted, I have had the funis of the child measured in every case attended from the Lying-in Hospital, and the result is as follows :

Out of 212 Cases, I find that

In 6 the cord measured 12 Inches.

1	....	....	13
7	....	....	14
7	....	....	15
15	....	....	16
4	....	....	21
75	....	....	18
10	....	....	20
4	....	....	21
9	....	....	22
49	....	....	24
2	....	....	26
5	....	....	28
1	....	....	29
8	....	....	30
1	....	....	34
5	....	....	36
1	....	....	46
1	....	....	48
1	....	....	54

Thus, out of 391 cases, there occurred six of one foot long, and none under that length. The length which occurred most frequently was eighteen inches, and the next in frequency two feet ; so that the estimates of authors are not quite correct. There is but one example in the whole number of a cord exceeding forty-eight inches.

We may conclude, I think, that cords only ten inches long must be comparatively very rare, (although I have quoted the record of four such,) since not one occurred out of 391 cases. Now, as to the practical effects of these unusually short cords, it should be borne in mind, that (in head presentations) as soon as the breech passes through the lower outlet, all stress upon the cord may be and is taken off by the child's lying with its abdomen close to the vulva ; and that the length required is

such as will reach from the insertion of the placenta to the vulva, and from the breech of the child, when at the vulva, to its umbilicus. A cord of this length will, it is clear, allow the child to be born safely. What, then, is this length? I have recorded four observations of different authors, in the former part of this paper, of children being delivered without accident, whose cords were only ten inches long. But suppose in these cases that the placenta were not situated at the most distant point of the uterus, that they were inserted into the side instead of the fundus, we may allow three inches more as the limit of the length necessary, and finally conclude, that a cord of thirteen inches long will always suffice for the delivery of the child, and that one of ten will also, under favourable circumstances.* This calculation entirely refutes the notion of delay in labour arising from this cause, unless, at least, the cord be under ten inches, and I am not aware of any example of this being on record.

Again, if the cord were so put on the stretch, is it not more likely that it would be broken, or the placenta detached, rather than that the cord would be able to retract the head in defiance of the powerful impulse *à posteriori* of the uterine contractions? And yet we are told that the latter is the common effect, but that the former rarely or never happens. It would be useless pointing out the contradictions given by one author to the statements of another. I shall rather proceed to correct the second error I have noticed, namely, the effects of its being coiled around the child's neck. It will be observed, that all the authorities assume that *short* cords and *shortened* cords are pretty much the same thing, and are followed by the same conse-

* It will be seen that in this calculation I am assuming that the head presents. A breech presentation would certainly require a greater length of cord, and in some cases might occasion some difficulty, and require division of the cord before the entire expulsion of the child. But such cases must be very rare indeed, since I have not met with a single example on record.

quences. Although some have stated that the twisting resulted from an excess in the length of the funis, they neither tell us how often it occurs, nor its effect upon the length of that portion of the cord which remains free. I regret that I have none but my own observations to submit to the meeting ; but these have been taken down very carefully, and none that were doubtful have been admitted.

Out of 190 cases, I find that the cord was round the neck in fifty-two, or in more than one-fourth. The shortest cord which was coiled round the neck was eighteen inches.—This occurred but twice in seventy-five cases. It was never under two feet when coiled twice round : nor under three, when coiled three times round. It was coiled four times round in one of three feet ; and four times in one case of fifty-four inches. Whenever the cord exceeded two feet in length, it was generally round the neck. Now take the example of the shortest cord which was found twisted round the neck, and deduct from it the length of the coil, and it will certainly leave thirteen inches. But we have already seen that thirteen inches are amply sufficient for delivery, and that ten may suffice when the placenta is situated laterally. Thus, even in the most unfavourable instance, the results so confidently anticipated could not happen. There would be no mechanical interference with parturition, nor any danger to the child. But this is only a part of the question. Look at the length where coiling was observed most frequently (twenty-four inches), and you will find that the part remaining free was equal to the length of an ordinary cord. Nay, the same fact was noted where the cord was twisted more than once round. It appears, therefore, that the coiling round the neck is a consequence of the excessive length of the funis, and that the number of coils is in proportion to that length.

Let us now examine how these conclusions bear upon the opinions already quoted.

1. If twisting round the neck is never observed in a cord under eighteen inches long, and if, deducting the coil, there

still remain thirteen inches free, it is clear that no delay in the expulsion of the *head* can be caused by it; and it is probable that the retractions described as effected by it, were in truth the natural recession of the head at the termination of a pain.

2. The same reasoning applies equally to the supposed delay in the delivery of the body from this cause.

3. With regard to the stretching of the cord, the obliteration of its vessels, and the pressure upon the child's neck, I am far from denying that this may take place; but it has already been shewn that the supposed cause does not exist—that, in fact, there is always sufficient loose cord to prevent it. But if the upper outlet and cavity were so filled with the shoulders and thorax of the child, as to prevent an equal and proportionate escape of the funis, then indeed it would be stretched, until relieved by the expulsion of the body of the child; and if there were much delay here, the life of the child might be lost from interruption of the circulation.

4. As to the rupture of the cord, or the detachment of the placenta, although *à priori*, the most probable of the supposed effects of shortened cords, the details already given shew that there is no fear of their occurrence, inasmuch as there is always sufficient free cord for the transmission of the fœtus. If they did not occur with cords of the natural length of ten inches, they cannot be anticipated with cords never reduced (by coiling) below thirteen inches.

5. Inversion of the uterus is still less probable; indeed it seems to be adduced by British authors as an effect, rather from respect to their predecessors than from any other cause.

As to the practical application of these observations, a few words will suffice. By almost all authors we are impressed with the necessity of untwisting the coil around the neck, by slipping it over the head or shoulders, in order to give the child the benefit of the full length of the cord. In many cases this is very difficult; in some, it is impossible. We have seen that in by far the majority of instances this is perfectly unnecessary, as

no evil consequences can follow, there remaining, allowing for the coil, an adequate portion of the cord free. The cord should in all cases be drawn down a little, to relieve the stress upon it, and to loosen the part round the neck ; but, except in a very few cases, more will not be necessary. I may add, that this was all that was attempted in the cases I have recorded.

ART. IV.—*Scarlatina*, with *Ulcerated Throat*, and *Inflammation of the Arachnoid Membrane*. By TIMOTHY BURKE, Licentiate Apothecary.

THIS complication I had an opportunity of observing on an extensive scale, during the last and present autumn, it being epidemic.

From the infant to the adult, none were exempt. The worst cases, and the most frequent, were those of children from two to ten years of age. I have very seldom observed the adult to be attacked in the malignant manner that the children were.

The peculiar characters which marked this epidemic were the following. For the sake of clearness, I shall divide it into three stages.

1. The Premonitory.
2. The Eruptive, with a blush of redness on the fauces.
3. The Sinking, with ulceration, sloughing of the fauces, and coma.

The first stage I seldom witnessed. It generally lasts about two days. The child becomes irritable ; refuses food ; and has alternate attacks of heat and cold : in the night the skin is hotter than usual ; the little patient restless and thirsty. On looking into the throat at this early period, a slight blush might be observed occupying the fauces.

The second stage.—Towards the evening of the second day the redness of the skin becomes apparent : it generally commences on the chest and face, and soon spreads universally,

giving the skin the well-known appearance of a boiled lobster-shell. At this period the fever becomes aggravated, the eyes *fiery*, heat of skin intense, pulse 120, hard and wiry; tongue elongated, red at the tip and edges, papillæ erect; great thirst, headach, intolerance of light, and raving, follow; the little patient avoids the stimuli of light and sound; all the secretions are arrested; the urine is red and scanty. On looking into the throat, a bright redness appears occupying the entire of the fauces; the tonsils are red, and so enlarged as almost to meet. This *erisypelatous* redness will sometimes be found to have spread upwards along the Schneiderian membrane, and downwards along the mucous lining of the œsophagus and air passage, giving rise to peculiar symptoms, according as those parts become affected.

Third stage. If the former stage be not arrested after two or three days, we will find the last fully set in. The fever becomes lessened; the face pallid, pulse rapid, and hardly to be felt; and the eruption disappears; the patient lies in a half comatose state, occasionally uttering a low moan: on being roused, the child for a moment regains its natural appearance, but soon sinks again into dosing: the vessels of the eye appear injected, but of a duller colour than that observed in the former stage: a scum begins to cloud the vision; betimes there will be purging; an acid irritating humour distils from the nostrils; when the little patient attempts to swallow, it seems to be in danger of choking, and whatever is given returns through the nostrils. On looking into the mouth, the soft palate appears of an ash colour, covered with tenacious mucus: the tonsils enlarged, but have lost the intense red hue, which characterised the former stage, and on close examination, large ulcers will be found in their body, their bases of an ash colour, their edges ragged, with tenacious mucus and lymph adhering to the back of the pharynx. When in this state, the patient hardly ever recovers; it becomes more and more comatose, and death soon closes the scene.

Treatment requires to be prompt and bold ; its success mainly depends upon the stage it is employed in. In the first stage I have succeeded in arresting the throat affection, by brushing the pharynx with a solution of nitrate of silver, a scruple to the ounce, and administering calomel and James's powder.

In the second stage, if the child be strong, and the fever violent, the neck must be repeatedly leeches, until the blush on the fauces be found of a less intense hue, and paler aspect ; calomel, and James's powder used : cold ablution employed ; and water, for which the child is very anxious, should be freely given. If the head appears much engaged, it must at once be shaved, leeches applied, and cold sponging continually used. In adults, it will be useful to steam the throat with the vapour of vinegar : when the intense inflammation has somewhat subsided, a strong solution of the nitrate of silver must be applied to the ulcers which are now making their appearance. If this treatment be successful, the pulse will be found to have diminished in frequency and hardness of character ; the intense heat of the skin will become lessened ; the child more lively ; drink can be taken without pain ; and the little patient gradually recovers. Great care still should be taken of the ulcers, never failing to touch them, until they appear clean.

In the third stage three indications for treatment present themselves. 1st. To change the character of the ulcers by some powerful caustic. 2nd. To relieve the congestion of the brain, which now puts on a most alarming character. 3rd. To support the fast failing vital powers.

The first is to be carried into execution by applying *nitric acid*, by means of a camel hair brush to the diseased parts : this should be repeated until the well known red line of demarcation is observed bounding the slough.

The second will be best obtained by shaving the head, using cold lotions, and leeching the temples and back of the ears ; blisters should then be applied to the vertex, temples, and back of the neck, never leaving them on for more than

from two to four hours ; sinapisms to the calves of the legs ; and calomel administered, if it can be got down. If these means be successful, the eye appears less dull ; the child will get more natural sleep, and when spoken to, will answer correctly ; and the vacant, stupid expression will be exchanged for the happy smile, which cheers the medical attendant, and rewards his labours.

Third indication. This will be best effected by administering wine and quinine, cautiously watching the effects: if they appear to excite irritation, their use must be at once suspended, and recourse had to other appropriate means.

It is only in the third stage that blisters will be useful. In the second they add to the inflammation, and often do irreparable injury, not only increasing the inflammation of the throat, but the blistered surface will often become gangrenous, and strip the neck to the most frightful extent. I have seen the fascia and vessels laid bare, and the child sink from the effects of an untimely application of a blister, when the disease itself had subsided : even in the third stage they will often fail. I seldom applied them to the anterior of the neck : the nape is the place where I have found them of most service. If the child be pallid and sunk, they can hardly excite the least irritation ; the vesicle will be colourless, and when broken, the denuded surface will be perfectly pale and unirritated : this is a fatal sign, as it shews the powers of life to be at the lowest ebb. There is a happy medium, when the vascular excitement is much lessened, yet not so much so as when a blister is applied ; no redness or irritation will follow. Here counter-irritants will be exceedingly useful : the period requires to be carefully watched : the pulse will be found to have become less frequent : the heat and general fever mitigated. Yet on looking into the throat, the redness still continues, but not of so intense a hue.

If success crowns our labours in this dreadful stage, the little patient has a long and lingering convalescence to wade through, which too often terminates badly. The consequences most to be dreaded are inflammation under the parotid, with

formation of matter under the fascia of the neck ; dropsy, or wasting diarrhœa ; and deafness.

The first affection generally commences two or three days after all the severe symptoms have subsided, with pain in the ear, then a lump becomes evident in the neck, this enlarges, inflames, and requires, after a short time, to be freely opened ; it continues to discharge for a long time, and often sinks the patient irrecoverably ; or gangrenous erysipelas takes place, and denudes the neck to a great extent.

The second affection, dropsy, does not set in till about a week after seeming convalescence ; generally commencing in the face and abdomen, and afterwards engaging the extremities ; its sudden origin, evidently shews it to depend upon some wrong actions of the vessels of the skin, which have been morbidly excited during the scarlatina. Some say that it depends upon a want of due exhalation on account of the newly formed cutis ; others advocate the more rational opinion, that it depends upon an inflammatory state of the vessels, not so intense as when the scarlatina prevailed. The latter opinion seems borne out in practice, as we observe the disease will give way if we employ mild antiphlogistic means ; moderate general bleeding, if the patient will bear it, hydragogue cathartics, as pul. jalap. comp., warm bath, and low diet ; after the disease has subsided, tonics, nutritive diet, and country air will be found most beneficial. I should remark that great danger exists while the affection remains ; for betimes it will suddenly disappear externally ; and metastasis take place to some important internal organ, which too often terminates fatally.

The third consequence, *diarrhœa*, I have not so frequently met with. Some cases of scarlatina set in with well marked symptoms of an inflammatory affection of the gastro-enteric membrane, and in these I have observed that the throat and head generally were free from any complication ; the tenderness of the belly from the commencement, with vomiting and purging, formed the chief characteristics : this tenderness was so excessive that I could only compare it to peritonitis, except that you had

none of the tympanitic state of the abdomen which marks that disease; this affection was best treated with local depletion, mild anodynes, absorbent medicine, bland diet, opiate injections, and after it had subsided by general tonics, &c.

CASES ILLUSTRATIVE.

During last autumn, I was called to see a child of nine years of age; my patient presented all the characters of the commencement of the third stage, I applied the nitrid acid to the diseased parts separated, and were thrown up after two days; each day I applied the acid twice: the little fellow's convalescence was tedious, abscesses occurred in the region of the neck, which I freely opened; these suppurated for a fortnight, and he got gradually well without any other bad symptom. The day I first saw this boy, I had the mortification of seeing a younger child perish; he had been ill for some days previous to my visit, and was treated in the usual manner, with leeches, gargles, &c., but soon fell a victim; before the boy, nine years of age, got well, another of the family took the complaint, and it travelled through them all—the mother and four in family; two were grown up, about eighteen to twenty; the youngest was five years old; with all there was hardly any premonitory symptom, and except in the youngest no appearance of eruption. The first examination of the throat shewed the intense redness, and *ash*-coloured ulcer, with enlarged and dropsical uvula: to each I applied the nitric acid at once without any delay, and had the happiness of not losing a single patient; none were followed with any bad sequelæ except my first patient, and even with this lad I do not think that any tumour would have occurred had I seen him earlier; for the longer disease is allowed to linger in the throat the more danger that it will have spread and engaged the cellular membrane of the neck: each case did not last more than four days, and each presented all the bad symptoms which usually characterize the worst prognosis. During this period, and prior to the above case, I happened to be called to attend a fine boy, attacked with this malignant affection; I applied every thing I considered would be of benefit, leeching, cold

lotion, solution of nitrate of silver &c., but was not aware of the good results of the application of the acid, which I did not use till a late period of the affection. I saw him die in convulsions after a week's illness; the ash-coloured slough had spread along the entire palate, and had completely destroyed the Schneiderian membrane.

During the present season I have been busily engaged in treating this disease. The first case was a boy, aged ten; he was attacked most fiercely. After about two days premonitory fever, the eruption appeared universal, the skin so hot that the hand could scarcely be retained upon it, the carotid beating most violently; eyes red; face scarlet; intolerance of light and sound; pulse 120, and hard; tongue red and fiery; no purging nor vomiting; throat universally red; tonsils enlarged, with the uvula so tumified that it threatened suffocation; the end of the uvula and both tonsils were covered with the *ash* slough. I saw no time was to be lost. At different periods, for two days, forty leeches were applied: and cold ablutions: little medicine could be given: the nitric acid was diligently used. During the evening of the second day he was to all appearance next to death. He lay exhausted with the loss of blood; the eyes dull and suffused; muttering delirium; unable to swallow the smallest particle; tenacious mucus, with unseparated slough clogging the throat: respiration performed with a violent effort, creating what the vulgar call the rattle, and which too often is the forerunner of dissolution. With all these bad symptoms I determined not to give up: having first inspected the throat, and made up my mind that the nitric acid had done its duty, I then had the head shaved, running blisters applied, and sinapisms to the legs and feet. During the night I had his throat washed from time to time with a large brush, dipped in a decoction of bark, and muriatic acid. I remained three hours (from nine to twelve) putting into practice what I have mentioned, and few, except those who have acted the operator as well as the physician, can imagine the difficulty and trouble experienced in performing the necessary duties.

My visit in the morning repaid all the trouble of the laborious night ; the boy answered me correctly, the eye had again become intelligent, the pulse had fallen to ninety. The skin was now moderately cool, and he was able to tell me that during the night he felt something like a piece of flesh separate from his throat, which being unable to spit up he swallowed : on examining the throat evidently a piece of slough had disappeared ; a red line marked its termination ; and the erysipelatous blush much subsided. From this period he went on well ; the decoction of bark was still applied till all the slough came away ; bowels were opened by enema and oil, and after the lapse of four days I had the pleasure of seeing him in a fair way of recovery. Anxiously looking out for any sequelæ, I observed, after five or six days, that he complained of pain in the ear ; this was soon followed by tumefaction in the angle of the jaw ; a little opening medicine, with stupes, terminated this usually troublesome affection. In about two days more a swelling appeared in his face : this rapidly spread itself over the body ; the urine became diminished, and of a red colour, with the remainder of the symptoms which characterize dropsy. I then directed any animal food he was getting to be discontinued, and ordered compound powder of jalap in small doses, with cream of tartar water for drink : this had the desired effect ; the urine was increasing in quantity, and the swelling diminishing ; when it suddenly disappeared ; he immediately complained of pain in the head ; he shivered violently ; re-action soon took place ; and when I saw him, he had all the symptoms of commencing arachnitis. I instantly directed leeches to the temples, with an active aperient of calomel and jalap, followed by the senna mixture ; this at once gave relief ; sleep soon followed ; and after the lapse of some hours he awoke free from any bad symptom. Months elapsed before the convalescence could be pronounced perfect ; and even still his squalid countenance and excavated tonsils bear evidence of the severity of the disease, from which he so fortunately recovered.

ART. V.—*Observations on the Artificial Dilatation of the Mouth of the Womb during Labour, and upon Instrumental Delivery, &c. &c.* By ROBERT COLLINS, M.D., late Master of the Dublin Lying-in Hospital.

THE above subjects occupy a very considerable portion of a work just published by Professor Hamilton of Edinburgh, and as the practice inculcated is calculated to urge junior practitioners to a hasty, in my mind unnecessary, and consequently injurious interference, I feel myself called upon to advise them against a line of practice, which, after the most anxious consideration with an ample field for observation, I am satisfied is fraught with much hazard to the patient. The treatment adopted by Dr. Hamilton is so completely opposed to that recommended by the most eminent physicians in London, Paris, and Dublin, that had it been advanced by a less distinguished member of the profession, it would have attracted little attention. Dr. Hamilton declares, that the first stage of labour, viz. the full dilatation of the os uteri, should be completed within twelve or fourteen hours from the actual commencement of labour, as the natural efforts can no longer be trusted to; that sundry measures are to be resorted to by the medical attendant for this purpose; and that the patient should almost never be allowed to continue longer than twenty-four hours without being delivered. The following are his own words; “When the pains take place, if the dilatation prove tedious, that is, if the continuance of strong pains for *six* or *eight* hours do not advance the dilatation to such a degree as to give reason to expect its completion within a few pains, *it becomes necessary to interfere*, lest the patient’s health should suffer.”* “Since the year 1800 the author has advised his pupils to secure the termination of the first stage of labour within *twelve* or *fourteen* hours

* See Hamilton’s *Observations on Midwifery*, p. 225, Part I.

from its actual commencement.”* Again, when treating of laborious labours, “ the author feels it incumbent upon him to declare, that when the uterine contractions proceed regularly without decided interruption, or when the infant, after the rupture of the membranes remains in close contact with the passages, the sufferings of the woman should almost never be allowed to continue longer than *twenty-four* hours, reckoning from the beginning of true labour throes.”†

Such are Dr. Hamilton’s directions, to the support of which he has devoted a large share of two volumes, in language the most decided, and sometimes even a little dogmatical. I have, however, studied every page with the closest attention, nor can I find fact or argument to induce me to alter my decided conviction, that such measures, thus warmly urged, are not only uncalled for, as far as regards the safety of the patient, but if *generally* acted upon, likely to be followed by serious results, both to mother and child. What must be the consequences of instructing the junior practitioner to effect the delivery of his patient within twenty-four hours ? It appears to me to cruelly encourage the destruction of the child, where, in the great majority of cases, not even a shadow of necessity could exist for such a proceeding. We may be told that such is not the case, as delivery can be effected in safety with the forceps ; this, however, where disproportion exists, as in really *laborious labours*, is mere delusion, and where there is no considerable disproportion the *necessity* for speedy delivery of the patient we have elsewhere shewn does not often occur, where the labour is not complicated.‡ Surely no experienced practitioner would be guided as to the safety or otherwise of his patient when in labour, by the number of hours, but by the present symptoms and previous history. Have we not the symptoms, *indicating* the approach of *danger*, as clearly and accurately marked as

* See Hamilton’s Observations on Midwifery, p. 195, Part I.

† See p. 42, Part II.

‡ See Practical Treatise on Midwifery, p. 10.

under any circumstances whatever : and is there any physician, with moderate observation, who has not seen some females exhibiting symptoms more aggravated, and sufferings more acute, at the expiration of twenty hours' labour, than others after sixty ? What would be thought of the surgeon who directed all operations to be performed at stated periods, without regard to *symptoms* or *necessity* ? To me the symptoms and necessity are as imperative and apparent in the one instance as the other, and there can be little doubt, the consequences equally serious.

Dr. Hamilton states, "when labour (with the head of the infant advancing) is protracted beyond *twenty-four hours*, the sufferings of the woman are always more or less distressing. Increased action of the heart and arteries, with febrile heat and thirst, headach, restlessness, and despondency, first take place. By and by the *strength fails*, the *belly* is first *pained* on pressure, and then *swelled* ; the *passages become tender* to the touch ; the *features shrink* ; the *breathing is affected* ; *vomiting* is apt to occur, followed by *delirium*, or *convulsions*, or *death*."*

" That this is a real representation of the consequences of protracted labour, must be acknowledged by every practitioner who has devoted himself to the department of midwifery ; and is most strikingly illustrated by Dr. Collins's valuable record of the cases which had occurred in the Dublin Lying-in Hospital during his mastership."

As to the symptoms above detailed, representing the real state of the patient in an ordinary tedious labour ; or the cases recorded by me in any way shewing such a result, I cannot but dissent. It is, indeed, somewhat like the condition of a patient in *truly laborious and difficult* labours, where such disproportion exists between the child's head and the mother's pelvis, as in most instances to render the reduction of the former necessary ; would any practical physician draw a comparison between

* Hamilton's Observations on Midwifery, vol. ii. p. 44.

the state of the patient here and in an ordinary tedious labour? Even in these trying cases, the mortality from the effects of laborious and difficult labour is, comparatively with other causes, *very inconsiderable*, when the patient is properly treated during its progress. This is a fact amply demonstrated by the results given of our Hospital practice;* and, in my opinion, the source of observation here was as extensive and unobjectionable as could be desired. In proof of this assertion, I have little doubt the following statements will appear satisfactory.

Of 16,414 women delivered in the Hospital during my residence, 164 died, or in the proportion of one in 100. If from this number we deduct the deaths from puerperal fever, which may be considered *accidental*, the proportion becomes greatly diminished, viz. to one in 156 deliveries: and again, if we subtract those deaths from causes *not the results* of childbirth, (which are marked thus * in the following table,) the mortality from effects arising in consequence of *parturition* is vastly reduced, viz. to one in 244.

TABLE SHEWING THE CAUSE OF ALL DEATHS IN THE HOSPITAL.

* Diarrhœa	1	Sloughing of Vagina . . .	6
* Typhus Fever	5	* Hydrothorax	2
Rupture of Uterus or Vagina	32	* Pericarditis	1
Uterine Hæmorrhagè . . .	11	Peritoneal Inflammation,	
* Puerperal Fever	59	(Placenta retained) . . .	4
* Inflammation of Brain . .	3	* Abscess in Spinal Canal .	1
* Ulceration of Intestines .	3	* Lumbar Abscess	1
Hectic Fever	1	* Phthisis	2
* Grief, apparently	2	* Diffuse Cellular Inflamma-	
* Stricture of Intestine . . .	1	tion	1
Effects of tedious and difficult		* Abscess in Abdomen . . .	2
Labour	11	* Acute Bronchitis	1
Convulsions	2	* Anomalous Disease . . .	12

* See Tedious and Difficult Labours, Practical Treatise, p. 7.

I shall next give a short statement of the *cause* of death in *all cases** where the patient was more than TWENTY HOURS in labour. These were forty-two in number, or in the proportion of *one* in nearly 391 : of the forty-two, *three* died of typhus fever ; *nine* of puerperal fever ; *one* of stricture of the intestine, with effusion into the thorax ; *three* where the placenta was retained ; *two* of convulsions ; *one* of abdominal inflammation previous to labour ; *nine* of rupture of the uterus ; *one* of inflammation of the intestines, with pus in the uterine sinuses ; *three* of anomalous disease ; *one* of diffuse cellular inflammation ; *six* of inflammation, &c., subsequent to difficult labour ; *one* of ulceration and sloughing of the vagina ; *one* of disease of the lungs and hæmorrhage ; and *one* of abdominal abscess. In addition to the forty-two deaths here noticed, *six* women died, who had been reported *several days* in labour previous to admission ; of course the duration of their labour could not be stated.†

When we reflect, in connexion with this simple statement of *facts*, that only *forty-two* women died who were above *twenty hours* in labour, out of the vast number of 16,414 ; and at the same time look to the *cause* of the fatal result, the truth of my assertion is, I think, clearly made out.

Again, let us examine the results in another point of view : thus, of 15,850 cases, where the *length of labour* was accurately noted in the hospital, 15084 were delivered within *twelve hours* from the commencement of labour ; 15,586 within *twenty-four* ; 15,671 within *thirty* ; and 15,720 within *thirty-six* hours ; leaving *only* 130 above that period. In no single instance in all these cases, were any means whatever used to effect the dilatation of the mouth of the womb within any *given period* ; nor was artificial assistance ever attempted until the *safety* of the patient absolutely required it. Of 16,654 births in the hospi-

* Practical Treatise, p. 365.

† All cases are minutely recorded in Treatise as above.

tal, which was the total number during the period of my medical charge, delivery was effected in seventy-nine by lessening the head on account of extreme difficulty in the labour; or where the child was dead and interference desirable, owing to the state of the mother. In *six* of the seventy-nine, delivery with the forceps was attempted; but no force, consistent with safety, could in this way accomplish it. *Fifteen* only of the seventy-nine women delivered by the crotchet, in difficult labour, died. *Fourteen* of the fifteen women were delivered of *first* children, all *males*; the other was a fourth child, and a female: this was one of the two hæmorrhage cases. *Seven* of the fifteen children were born *putrid*; *three* of the seven were the children of the women who had been a length of time in labour before admission. In *none* of the fifteen was death caused by any injury sustained in the actual delivery. •

In this report of delivery by the crotchet, it is necessary to bear in mind that the *proportion* of such deliveries is greatly increased in consequence of the *same patient* returning to hospital *two, three, or even more* times; in whom, from deformity or other circumstances, such mode of delivery is rendered *unavoidable*. It is a remarkable fact, that of the examples given by me (page 487) of repeated delivery by the crotchet, but *one* of the women died; thus satisfactorily proving, that where *death* succeeds this operation, the fatal result is *not* dependent on the mode of delivery, but upon the circumstances demanding such interference. Another cause which greatly *increases* the *proportion* of deliveries with the *crotchet*, is the fact of so many patients being admitted after having been *one, two, three, or more* days in labour. Of the 106 cases, where the children were *still born*, and the *labour severe*, nearly *one-half* were of this description; and most of them grossly mismanaged before admission. Of the fifteen above mentioned, one died from stricture of the intestine, with effusion into the thorax; *one* from the effects of abdominal inflammation, *previous* to labour; *five* from the effects of labour, *previous* to admission; *one* from

puerperal fever, which at the time was prevalent in the hospital ; *one* from typhus fever ; and *one*, a poor, starved, idiotic woman, died from *gangrene* of the vagina and bladder. The *five* remaining cases died from the effects of inflammation and hæmorrhage, or injury produced by pressure. *Two* of the five suffered from hæmorrhage ; one previous to the delivery of the placenta ; and the other subsequent to its expulsion. In *both* it was necessary to pass the hand into the uterus. One of the two had been force-delivered with a former child, and *all* her children were still born.

Do not these calculations establish to actual demonstration, that the *chief* mortality (97 out of 164), subsequent to delivery, arises from causes *not* the results of *childbirth* ; and that the deaths in consequence of the labour being protracted or laborious, are *trifling* indeed. In support of this position, it is only required to examine the mortality in the hospital for the four last years of my residence after puerperal fever disappeared.* In this period, the very great number *ten thousand, seven hundred and eighty five* deliveries occurred ; out of which *fifty-eight* died, which is nearly in the proportion of *one* in every *one hundred and eighty-six* : the lowest mortality perhaps on record in an *equal number* of a *similar class* of *females*.

With such facts as I have here stated, and taken from so extended a series of observations, I feel not only justified in dissenting from the hasty measures recommended by Professor Hamilton to effect delivery, but at the same time called upon to state my opinion publicly, as well as the foundation upon which it is based, on so important a point of practice. This, my numerous pupils have justly a right to expect from me, having so long had the medical charge of our magnificent Lying-in Hospital, where the instructions I inculcated were so much at variance with the views of Dr. Hamilton.

* See p. 387, &c. of Practical Treatise.

In the second part of Professor Hamilton's work, page 99, he, after describing two cases of delivery with the forceps, "expresses his surprise at the delay recorded in many of the cases which occurred in the Dublin Lying-in Hospital, under the very able superintendence of Dr. Collins." "It appears that, from twelve to twenty-four hours were not unfrequently allowed to elapse in cases where (there being no disproportion) the labour throes ceased to advance the infant, before recourse was had to instrumental delivery." "He can scarcely permit himself to believe that the patients, instead of having been watched unremittingly from the moment that the infant's head had passed through the os uteri, had only been visited from time to time, according to the practice adopted above half a century ago."

In support of this rather uncourteous allusion to my practice, twenty-three cases are referred to by number, without any statement whatever; *twenty-two* of which are selected from those recorded by me as the *worst laborious labours* in my accounting for the children being still-born, and the remaining one is from the cases of rupture of the uterus.

It is strange, indeed, that these observations could have been made by one so very competent to form a correct opinion; and, above all, that such a remark as ("THERE BEING NO DISPROPORTION") should be found, when, in *all* the cases but *two*, the child's head had *unavoidably* to be lessened, and even after this was effected, in several of the cases there was great difficulty. Three of the patients had been *twice* force-delivered; one, *four* times, and another *more* frequently; in *three* others, the pelvis was *very defective*; in *three*, the children were *unusually large*; in *four*, the forceps was applied, in *two* of which no force consistent with safety could effect delivery, and the head was then lessened; and in the other two forceps cases, the children were got away with much exertion; almost *all* the labours, where the patients had not been *previously* delivered

with instruments were *first* children. A *very brief* outline of the cases from my work is given below;* and when we recollect, that these cases are taken from a record of 16,654 births,

* The following cases were recorded by me to shew the cause of the children being still-born.

Page 462, No. 49. Considerable difficulty was experienced in getting the head through the pelvis after it was lessened, in consequence of the hand having descended with it. First child.

P. 464, No. 150. In this case, the forceps was applied, but no force consistent with safety was found sufficient to effect the delivery; the pelvis evidently defective.

No. 173. The pelvis was considerably diminished in size, in consequence of a projection of the last lumbar vertebra. First child.

P. 465, No. 209. This woman had been *four* days in labour before admission, and many of the bones of the head were removed before the delivery could be completed; the child was large and putrid. First child.

P. 469, No. 425. In this case, the forceps was applied, but no force consistent with safety was of the *least service*. First child.

P. 470, No. 509. In this case, the bladder was forced down before the head; the child, her third, was *very large*, and *all* her children were still-born.

No. 526. It was this patient's second child; she had been delivered in the Hospital thirteen months previously, with the *crotchet*, after a labour of *three* days.

P. 471, No. 555. The *pelvis* was *defective*. First child.

P. 472, No. 626. The head was *firmly fixed* in the pelvis. First child.

No. 639. The ear could with difficulty be reached by the finger; the forceps was cautiously applied, and *considerable exertion* was required to effect the delivery, the child being *unusually large*.

P. 473, No. 665. Was thirty-five hours in labour of her first child.

P. 474, No. 667. *Great exertion* was necessary to effect delivery after the head was lessened, in consequence of its being *much ossified*.

P. 475, No. 674. Was thirty-six hours in labour with her first child; delivered with the forceps.

P. 476, No. 740. Was thirty hours in labour in the Hospital, and the child's heart having ceased to act, the head was lessened. First child.

P. 477, No. 808. The child's head was scarcely even within *reach* of the finger; she was *two* days in labour before admission, and *twice* force-delivered in the Hospital previously.

No. 817. The soft parts in this case continued in such a state as to prohibit the use of the forceps, and the pains were very ineffectual. First child.

and given there in the very words originally entered at the time of the patient's illness, when often so much had to be attended to, I should hope they will appear tolerably satisfactory ; most of them were considerably curtailed, in order to state the particulars in as condensed a form as practicable.

As to the weakness of Dr. Hamilton's belief, expressed above, after reading my statements on the subject accompanied by the truly minute reports given, it appears more like the thought of one who had lived *a century* than only "half a century ago."

That Professor Hamilton's "positive decision," respecting the cases here noticed, originated in his own imagination, and not from the facts detailed, is accurately demonstrated by himself ; as in his *third order* of laborious labours, which he describes as comprehending "*all those distressing cases where there is a disproportion between the infant and the apertures through which it must pass ;*" most of these IDENTICAL cases are again selected as examples ; followed by "whenever the necessity for interference in those deplorable cases has been ascertained, the author has recommended and practised immediate delivery." p. 162.

As to the case of rupture of the uterus selected out of thirty-

P. 478, No. 820. Was forty-eight hours in labour, first child ; and the child being dead for some hours, the head was lessened.

P. 480, No. 976. Was a similar case. First child.

No. 1005. Was only nine hours in Hospital ; had been seven times artificially delivered.

No. 1032. Was four times artificially delivered ; fifteen months previously with the crotchet, in the Hospital.

P. 482, No. 1041. It required *two hours* diligent exertion to effect delivery, even after the head was lessened as much as possible, owing to the defective size of the *pelvis*. First child.

No. 1053. Had been artificially delivered before ; head lessened when child's heart ceased to act.

Such is a short outline of the cases commented upon by Dr. Hamilton. See *particulars* in *Practical Treatise*, p. 462, &c.

four, I cannot, as it is given, account for the delivery being delayed from her admission in the evening when the symptoms were so urgent, till nine o'clock next morning. There must have been some omission in recording the case. That rupture of the uterus is not caused by *protracted labour*, in the great majority of instances, the cases given *clearly* prove. Of the thirty-four, in *eight* only did the labour exceed *twenty-four* hours; and *even* in *these* eight, a perusal will satisfy the most sceptical, that the labour was almost *invariably moderate*.* In *one-half* of the *total* number of cases the rupture occurred within *twelve hours* from the commencement of labour. This is a *striking fact*, markedly shewn by the tables which accompany the cases in my work, yet apparently overlooked by several readers. Thus it is obvious, that this deplorable accident is not often the result of *severe* and *greatly lengthened labour*; and therefore, not to be prevented by artificially effecting the full dilatation of the mouth of the womb within twelve hours, and still less, the delivery within twenty-four.

Another misfortune, scarcely less fatal to the patient's welfare than the above, viz., sloughing of the urethra, or of the recto-vaginal septum is adduced by Dr. Hamilton as demanding interference in laborious labours. After enumerating several of the symptoms indicative of danger, he adds: "delay, under such circumstances, according to Dr. Collins's own shewing, would be productive of sloughing of the contents of the pelvis, with all its fatal consequences, as he has so well described, p. 18."

This quotation is certainly given with some ingenuity to support Professor Hamilton's own views, which I do feel in *several* instances he has apparently done—in opposition to my sentiments, my meaning, perhaps, being obscure. The passage referred to is taken from my urgent recommendation of the vital utility of the stethoscope, in enabling us to ascertain the

* See Practical Treatise, page 307.

life or death of the child in laborious labours; which is in my opinion, one of the greatest improvements that has been made in the practice of midwifery. Heretofore, we were in a great measure, ignorant of the time at which death took place; and the practitioner, *imagining the child alive*, from want of satisfactory evidence of its death, delayed interfering, until his patient was in the *greatest possible danger*; whereas, had he been assured the child was *dead*, he would have delivered her before life became *actually hazarded*, and thus prevented her not only enduring for hours, but even days in some instances, the most torturing pain, the result of which continued suffering was not unfrequently death; or, what was perhaps worse than death, extensive sloughing of the urethra, or of the recto-vaginal septum, establishing a communication between these two cavities, reducing the unfortunate sufferer to a state of extreme misery. Such is the passage to which reference is made; but surely, my anxiety to have the delivery effected shortly after the *death* of the child, without waiting till it be expelled in a *putrid** state, during which time the patient must suffer the most urgent distress, followed often by the worst results, *does not shew* me to dread these fatal consequences where the patient is under the charge of an intelligent physician.

On the contrary, at page 16, the following strong expressions are used by me; I have no difficulty in stating, and that after the most anxious and minute attention to this point, that where the patient has been properly treated from the commencement of her labour; where strict attention has been paid to keep her cool; her mind easy; where stimulants of all kinds have been prohibited, and the necessary attention paid to the state of her bowels and bladder; that under such management, the *death* of the child takes place in laborious and difficult labour, before the symptoms become so alarming, as to cause any experienced physician to lessen the head. This is a fact which I have ascer-

* See page 19, Practical Treatise.

tained beyond all doubt, by the stethoscope ; the use of which has exhibited to me the great errors I committed before I was acquainted with its application to midwifery, viz. : in delaying delivery, often, I have no doubt, so as to render the result precarious in the *extreme*, and in some cases even *fatal*.

Such must ever have continued, to the incalculable injury of the patient, and disgrace of the medical attendant exhibiting his imperfect knowledge, had not the means of detecting the death of the foetus with accuracy been found out. I cannot, therefore, too strongly impress on the mind of the junior practitioner, the absolute necessity of making himself acquainted with the use of the stethoscope ; considering it as I do, of the utmost importance in these cases. I am fully satisfied, that sloughing of the urethra, or neck of the bladder, the result of *pressure* from the *natural efforts*, where due attention is paid to the patient, is *very rarely* to be met with, *provided* delivery be effected (*where the pressure is severe*) by lessening the head in a short time *subsequent* to the death of the child ; indeed our hospital practice *proves this beyond a doubt*.* Is it not culpable, therefore, to defer delivery when we are perfectly convinced of the child's state, and our patient threatened with an injury so deplorable ? These observations, it is to be recollected, are *solely* applicable to laborious and difficult labours ; where the delivery can be effected in safety by no other means than lessening the head.

Doctor Hamilton, in noticing such cases, where the symptoms are urgent, states " he should consider it his duty instantly to relieve the poor woman, without paying the *least regard* to the *condition* of the infant." Again, " he cannot imagine a case of laborious labour, which had been much protracted, where the knowledge of the *state* of the *infant* can be necessary to regulate the practice."† These are *startling* observations to guide the junior practitioner ; and, to me, apparently made without

* See page 359 Practical Treatise. † See part II. pages 104 and 107.

sufficient caution or cool reflection. Surely no individual, however experienced, would venture to open the head of a *living child*, so long as even the most *remote shadow*, even of hope *existed*, of any favourable change taking place, or the life of the mother being preserved. The imperative duty of *saving her life*, when placed in the most *imminent danger*, should *alone* tempt us. On the contrary, when the *child is dead*, is it possible any practitioner could be found so little competent to the discharge of his duty, as in *any degree* to hazard the life of his patient; when, by lessening the head, all danger is removed? I could not picture to myself a greater act of cruelty, nor a more glaring error in practice, than permitting a female to suffer the torture of a laborious labour, hour after hour, where the child is *dead*, and the *symptoms urgent*, until it be at length expelled in a *putrid* state, with the probability of entailing upon her for life the miseries before noticed. It is here the real value of the stethoscope can in my opinion be fully appreciated; there is no mode of diagnosis more truly useful, and I feel convinced, all who accustom themselves to its application will eventually agree with me in this opinion.* I cannot avoid expressing my dissatisfaction with the following extract, given by Dr. Hamilton, on an important practical point, connected with the treatment recommended by me in these trying cases of difficult labour. He states, page 103, in alluding to the Princess Charlotte's death: "that melancholy case strongly shews the fallacy of a rule which appears extremely plausible, and which has been scrupulously adopted in the Dublin Lying-in Hospital." The rule to which he alludes is delaying interference "*as long as the head of the*

* We fear Professor Hamilton does not yet fully estimate the value of this instrument, otherwise the following observation never could have been made by him: "Would the reviewer propose to apply the stethoscope to the *naked belly of the woman*?" I will use his own reply nearly: "he may be assured that, in this part of the world at least, such a proposal would be indignantly rejected by every young or old practitioner of reputed respectability."

infant advances ever so slowly."—(Doctor Collins, p. 17.) It is only necessary to refer to the page noticed, to at once see the freedom used in suppressing the latter truly important part of the sentence. After enumerating the symptoms indicating the use of the *perforator*, and that these, being *urgent* or *otherwise*, should make us deliver sooner or later, it is added, the difficulty in such cases is caused by a disproportion between the child's head and the pelvis; and except where this is very great, no individual can foretell whether the uterine action be sufficient or not to expel the child; therefore the most certain proof we can have of such disproportion existing, is, the head remaining stationary for a number of hours after the dilatation of the mouth of the womb; uterine action during this time continuing strong. This is a more certain proof than any derived from the most accurate examination; for, though in this way we may be able to inform ourselves with tolerable correctness, as to the size of the pelvis, yet the size of the child's head, its degree of ossification, or the amount of compression it may undergo from uterine action, never can be correctly ascertained. *Let it be carefully recollected, at the same time, that so long as the head advances ever so slowly,* the patient's pulse continues good, the abdomen free from pain on pressure, and no obstruction to the removal of the urine; interference should not be attempted unless the child be dead.*

Is it possible a more distorted view of our practice could be given than the *quotation* represents? Or is it conceivable

* What are Doctor Hamilton's own directions, p. 48, Part II: "The apparent effects of the labour throes require very particular attention; so long as they are perceived to act decidedly in pushing forward the presenting part, *however slowly*, the natural powers may be trusted, if other *circumstances* are *favourable*." Again, p. 51, "On the whole it may be concluded, that so long as there are no untoward symptoms in respect to the general health; so long as the pains continue to advance the infant; and so long as the passages remain in their healthy natural state, the contractions of the uterus may be expected to complete the delivery."

any individual could be found to recommend the destruction of a child under such circumstances, as all other means of relieving the mother are out of the question? I sincerely hope and believe the search would be vain; even the thought creates a shudder.

I feel satisfied also, that the very favourable results shewn of the practice in our hospital, fully justify me in recommending to my junior brethren what I found so truly successful.

I have now to request attention to another point of vast practical utility, which is delivery by the forceps in laborious labours. Here again, I am almost ashamed to say, my directions are as different from the construction adduced as words can convey.

In expressing my opinion as to delivery with the forceps, I have made the following *general* statement. The delivery of a female with the forceps, when the os uteri is fully dilated, the soft parts relaxed, the head resting on the perineum, or nearly so, and the pelvis of sufficient size to permit the attendant to reach the ear with the finger, is so simple that any individual with moderate experience may readily effect it. I have no hesitation in asserting, that to use it under other circumstances, is not only an abuse of the instrument, but most hazardous to the patient. It is from being thoroughly convinced of these facts by long and extensive observation, that I consider the forceps quite inapplicable when the head becomes *fixed in the pelvis*, and that the *ear cannot be reached by the finger except by VIOLENCE, in consequence of disproportion existing between the head and the pelvis, either owing to the former being unusually large, or the latter under size; in most instances measuring little more than three inches from pubes to sacrum, and in others less than this.* Compare the meaning herein conveyed with Dr. Hamilton's inference: "these observations warrant the inference, that Dr. Collins is not fully aware of the power of the forceps: for, in the *first* place, when, from the protraction of the labour, the necessity for interference occurs,

although the ear of the infant be within reach of the finger, that is, so near the external orifice that an ordinary sized finger could touch it, *it very seldom happens that this can be accomplished* WITHOUT GIVING PAIN. If Dr. Collins's rule, therefore, were adopted, the forceps could not be employed once in *twenty* cases, when the author, from experience, knows it is both safe and useful.*

What greater perversion of meaning could be conceived than is here stated, "without giving pain"! It was truly disagreeable to me to notice this in any way; and having made the facts known, I shall do no more.

It is not my intention to enter into any detail as to the application of the forceps in laborious labours; this I have done at length in my Practical Treatise.

I consider the forceps when used with prudence, a most valuable instrument; but its utility is greatly lessened by the injury so frequently inflicted on the patient, by having recourse to it where *no* instrument is *necessary*; but *much more so* by using it where in my mind it is not only inapplicable but highly dangerous to the patient's safety. A prudent use of instruments in the practice of midwifery is of great importance; but the necessity alone of freeing the sufferer from impending or present danger should induce us to resort to them.

Dr. Hamilton, in his observations on the forceps page 112, notices five cases where we endeavoured, but without effect, to deliver the patient with this instrument, of which he offers a rather gratuitous and lengthened explanation.

In *three* of the five the uterus had ruptured; in one of which the head receded on attempting to introduce the instrument; in the other two, no force consistent with safety could effect the delivery; and even after the head was lessened, considerable exertion was required. The *two* remaining cases

* Dr. Hamilton seems to forget here that he only used the forceps thirty-three times in *forty-eight years*. We used it twenty-four times in *seven years*.

were *before* alluded to, and given above, see page 47, Nos. 150, 425: in one the pelvis was defective; and in both no force, consistent with safety, was of the least use.

Dr. Hamilton, in accounting for my want of success, states, “the instrument employed had certainly not been calculated to lessen the head of the infant to the degree which it can bear with impunity, viz. to three inches between the parietal protuberances.”

I have stated elsewhere,* that in most laborious labours the pelvis measures little more than three inches from pubes to sacrum; in others less than this: and when we consider that the blades of the smallest sized forceps used in Britain, even when *completely closed*, measure from $3\frac{1}{8}$ inches to $3\frac{1}{2}$, it is clear that were the bones of the pelvis denuded of their *soft parts*,†, there would not be space to admit their application. Professor Hamilton, in commenting on this measurement of the forceps, states, “when the branches of his are joined, the greatest distance *between* the *blades* is $2\frac{5}{8}$ inches.” This is certainly a deviation from the ordinary mode of taking the size of the instrument, as if the *blades* consisted of air instead of steel. We must also recollect that the child’s head measures $13\frac{1}{2}$, $14\frac{1}{2}$, or 15 inches in circumference; and were we even to overlook altogether the safety of the mother, if compression be made to a great extent, there can be scarcely a hope of life.

This is a very different opinion from that of Professor Hamilton, where he states, page 115, “*any unusual size of the infant*, independent of monstrosity or disease, can be overcome by the compression of well adapted forceps.” When we reflect that the usual weight of the infant at birth is 7lbs. or $7\frac{1}{2}$ lbs., we can clearly see that such a child may be delivered with the

* See page 12, Practical Treatise.

† Dr. Hamilton states, page 49, that he has discovered *swelling of the parts lining the pelvis* to be one of the chief obstacles to the progress of the infant under ordinary management.

utmost facility, when one of 10lbs., 12lbs., or 14lbs. as we have frequently witnessed, could not possibly be got away by any exertion, particularly if the pelvis be in the least under size : neither is it uncommon to meet with ossification of the head to such an extent as scarcely to admit of any compression, especially in *male* children, of which the *great* proportion consists in laborious labours, owing to the increased size of the head of the male, causing disproportion between it and the mother's pelvis.

The *frequency* with which instruments are used varies much in the practice of different individuals. By continental physicians and also by some in Britain, artificial delivery is often resorted to. The *crotchet* is used by many as *frequently* as in our hospital and by others much *oftener*, notwithstanding the *forceps* being in *constant* requisition.* This is a *fact* worthy of attentive consideration, and if examined into conjointly with my statements of the results of the practice of the Dublin Lying-in Hospital both with regard to mother and child, it will I think be apparent, that it is neither *necessity* nor the *safety* of the patient which demands this interference, and consequently neither an appropriate nor useful practice. In my Treatise on Midwifery I used my utmost endeavour to state as clearly and concisely as possible, the result of every occurrence which took place in our hospital during my residence, so as to enable all practical physicians to draw conclusions far more satisfactory than any I could place before them. How to communicate the *numerous* facts so as to insure this important object, cost me much consideration ; and I am more than gratified to find that the minute details given, together with the full record of cases on the various subjects, have proved in some measure as satis-

* See page 28 of Practical Treatise, as to *proportion* in which instruments are used in many of the principal institutions. In the Report of the Wellesley Dispensary, for forceps used thirty-one times, read three. This error was in the Report from which I copied.

factory as it was my wish they should to a very widely extended circle of professional brethren both in Britain and on the Continent, whose opinions I value highly. Conclusions thus arrived at by the individuals themselves, either of the utility or otherwise of the practice adopted, must prove beneficial.

I have made the latter remarks in consequence of the too narrow and contracted view Professor Hamilton has taken of a work into which so much had to be compressed. It is surely not to comment on a *few* cases from a report of *sixteen thousand, six hundred and fifty-four*, that such a work should be looked into; it never should have been published if the author had not widely different and more extended ideas of its utility. Is it not to the *general results* collected in this valuable field for observation our best attention should be directed? To this however, Professor Hamilton has not looked, as, if considered important by him he would have stated these results, which *in no one instance* has he done, although given by me on *all* the various subjects with strict accuracy, and sufficient brevity: this is an apparent and vital omission in his otherwise full and numerous extracts.

I have not entered into any detail of the measures recommended by Professor Hamilton to effect the dilatation of the os uteri within a limited period, as disbelieving in the utility of the measures it is unnecessary. For information on these points the work itself must be consulted.

In some instances, especially with first children, the mouth of the womb continues rigid and hot, with little tendency to yield under uterine action, accompanied not unfrequently by considerable irritation. In such, bleeding to the extent of ten or twelve ounces, and keeping the patient under the influence of slightly nauseating doses of tartar emetic, (to which a small quantity of opium should be added,) will be found to promote relaxation, and thus be productive of the best effects. In others, where a fold of the os uteri continues to be forced down before the head anteriorly between it and the pubes although else-

where obliterated, the descent of the head will be much facilitated by applying two fingers, so as to keep it stationary during the pain, and thus permitting the head to clear this obstruction; neither of these cases are often met with, nor have they any tendency to illustrate the opinions noticed. I make the observation here having had practical experience of the advantage of the treatment.*

On that part of Professor Hamilton's work, subsequent to the consideration of laborious labours, it is not my intention to make many remarks at present. To several observations however some explanation is required.

First, with respect to presentations of the feet, I have pointed out with much earnestness to the junior practitioner the importance of avoiding all interference until the hips of the child shall have been expelled, permitting thus much of the delivery to take place slowly and gradually in order to promote as full dilatation of the soft parts of the mother as practicable, so as to facilitate the delivery of the shoulders and head, which in every case is the most critical part of the labour; if this be not attended to, delay will be the result, and pressure on the funis prove destructive to the child.

Dr. Hamilton states, "it *sometimes* happens, that while the patient is out of bed, the membranes suddenly give way, the liquor amnii is discharged, and the feet of the infant are protruded. These circumstances are apt to excite such alarm, as to suspend the uterine contractions; and if the practice recommended by Dr. Collins be adopted, the infant would probably be lost. Instead of not interfering the infant's limbs (feet?) should be wrapped in a soft warm cloth, and gently drawn forward shifting hold according to their advance," and thus completing the delivery. He adds, "even in a first labour, it should not require much more than *five minutes*, for experience proves that the passages yield readily to pressure from within."

* See a very useful Paper on the benefit derived from tartar emetic, in several varieties of labour, by Dr. Evory Kennedy. *Philadelphia Med. Jour.*, Feb., 1836.

I have merely to observe upon this ingenious and truly hypothetical case, that my suggestions had reference only to ordinary occurrences; yet, even in the instance sketched, except where some unusual delay took place, I have no hesitation in stating the treatment pointed out much more likely to destroy the child, than that objected to by Dr. Hamilton.

Second, with respect to presentations of the breech, I have stated where the uterine efforts are from any cause inadequate to its expulsion, or some occurrence takes place rendering speedy delivery necessary, the attendant by passing one or two fingers into the groin and assisting during each pain, will almost invariably be able to get it down, if great deformity do not exist. We would strongly deprecate the use of the blunthook or forceps, as advised by some authors, as such practice is very likely to be followed by fracture of the thigh-bone, or at least considerable injury of the soft parts. The force we employ even with the fingers must be exerted with caution. In cases of extreme deformity desperate measures are necessary, and instrumental delivery unavoidable; yet we never met more than *one* instance, out of between 24,000 and 25,000 deliveries, where any instrument was required under such circumstances.

The case alluded to was that of a patient who had been forty-two hours in labour before admission, the child *dead*. All efforts with the fingers in the groin were fruitless; the blunt hook was then passed over the thigh, and by great exertion the breech got down. The child was very large and putrid; the body distended with air. This was the only breech presentation we ever met with requiring the aid of instruments for its delivery. The large size of the child, but chiefly its great *distention*, sufficiently explain the difficulty. Some of the most tedious labours arise from the latter cause. The use of the stethoscope under these circumstances is invaluable.

Dr. Hamilton in reference to the observations and case given states, “in the practice of the author, for the last forty

years,* he has had no occasion to use any mechanical means in such cases." He adds, "every practitioner in extensive practice must acknowledge that cases now and then do occur where neither the fingers nor a ligature can be of any avail in advancing the infant ; and even Dr. Collins, although he strongly deprecates the use of the blunt hook and forceps, records, that in *one* case he was obliged to have recourse to the blunt hook. Admitting then the necessity for applying mechanical assistance in some cases of breech presentation, the question to be decided is, whether the blunt hook or the forceps be the appropriate instrument ; and the selection in the author's opinion is abundantly obvious." "Dr. Collins has, to the author's surprise, included in his anathema, an interdict of the use of the forceps as well as of the blunt hook : he says that such practice is very likely to be followed by fracture of the thigh-bone, or at least considerable injury of the soft parts. That the blunt hook may have such effects is willingly conceded, but that the application of the forceps could either fracture the thigh-bone of the infant, or injure the parts of the mother, is quite inconsistent with the experience of the author."

In reply to the lengthened observations of Dr. Hamilton, (a considerable part of which I have omitted,) I would remark, that by my statement it is obvious it is not from experience of the use of the forceps in breech presentations my opinion is founded ; and it must be equally evident to all who read my comment on the blunt hook and forceps, that the danger of fracturing the thigh-bone is applied to the former, and the injury of the soft parts to the latter. I am satisfied no possible effort with the forceps could have effected the delivery in the case here detailed ; and that the soft parts of the mother, if the attempt had been made, must indeed have suffered grievously, and that to deliver a *putrid* child. As this difficulty is not likely to be *often* met with, enough has been said.

* Dr. Hamilton should have recorded the number of his *cases* in place of *years*.

Thirdly. With respect to presentations of the shoulder or arm, which is a subject of great importance to the practitioner in midwifery, my experience warrants me in recommending in *certain cases of much difficulty*, an opposite line of practice to Dr. Hamilton, but at the same time singularly successful, and as it is *alone* practised in cases where the child is dead, in no way hurtful.

I have stated, amongst many other suggestions on these trying occasions, that in my opinion, there are but *two* modes of delivery to be considered: the one, turning; the other, perforating the thorax and bringing down the breech with the crotchet.* The propriety of *turning* the child when it presents with the shoulder or arm, in *all cases* where it can be effected with tolerable safety to the mother, *cannot* be *questioned*. After describing as accurately as in my power, the cases where *turning* is to be resorted to, at the same time the means to be employed to enable us do so; and likewise the operation itself, I then describe a very different case, one where the greatest danger must be encountered in any attempt to turn, so much so that in my opinion no prudent practitioner would do so: yet such attempts we have witnessed, but with very fatal results.

The cases we more particularly allude to, are, where the waters have been long discharged, the uterine action powerful, and the child's body forced low, and firmly impacted in the pelvis for several hours; in such, turning would be hazardous in the extreme; besides, under these circumstances, the child's life is destroyed by pressure—a fact which we have clearly ascertained by the stethoscope, by which we are enabled to detect the death of the foetus at a period when otherwise we might be induced to expose our patient to the utmost danger in

* No instance of spontaneous evolution occurred in the Hospital during my assistant or mastership; nor did one take place during the residence of Doctor Clarke—one excepted, which the Doctor states was very doubtful, as it merely depended on the report of a midwife. In these different periods there were *thirty-four thousand five hundred and seventy-six* women delivered.

the attempt to turn, where we have a comparatively safe means of delivery.

The singularly rare occurrence of a living child being born where spontaneous evolution takes place, even in the most expeditious manner, affords additional testimony to the fatality to the child in such cases.

Doctor Clarke in his Report of the Dublin Lying-in Hospital states, "he has heard of several patients who lost their lives by practitioners of good repute insisting on turning the fœtus, although evidently putrid. Would not," he adds, "a better chance be afforded to patients so situated, by perforating the thorax or abdomen, so as to lessen their bulk and by the aid of the crotchet or blunt hook bringing down the breech?"*

This, from ample experience is the practice we should unhesitatingly recommend; and that in all cases where its death can be satisfactorily ascertained. We have performed this operation repeatedly without the slightest injury to the patient, except in *one* instance where the pelvis measured but *two* and a *half inches* from pubes to sacrum; nor do we think, where common caution is used, that there is comparatively speaking any risk to the patient. Delivery in this way is very troublesome, in most instances requiring an hour and a half or two hours for its completion. A free opening must be made with the ordinary perforator into the thorax, so as to permit us completely to empty it of its contents; we next open through the diaphragm and remove the abdominal viscera, in order as much as in our power to diminish the bulk of the body; for this purpose the crotchet and finger are to be used; we then fasten the crotchet on the pelvis of the child, and giving gentle assistance with each pain, where the woman is well formed, the breech by a little perseverance will be got down and the delivery accomplished. Where we find much resistance and there is no very urgent

* See Transactions, Association of College of Physicians, Dublin, vol. i.

symptom, rendering speedy delivery necessary, by withholding further interference for some hours, the body becomes softened and collapsed and is then more easily removed; in some instances the child is expelled doubled by the action of the womb.

Dr. Hamilton, in his observations upon this order of preternatural labours, states they are "most dangerous and embarrassing." "With respect to a practice, lately adopted in London and Dublin, in the cases under consideration, he feels it to be his imperative duty to express his disapprobation. The practice to which he alludes, is eviscerating the foetus, that is, extracting the contents of the thorax and abdomen."

It would almost appear from this "imperative" statement of Dr. Hamilton, that evisceration of the foetus was the treatment usually adopted by us in presentation of the shoulder or arm. Of *forty* presentations met with in the Hospital, during my mastership, *thirty-three* of the children were *turned*; of which *twenty* were *born alive*. In *six*, delivery was effected by breaking down the thorax. In *one*, the arm descended with the breech; the birth was premature, six-month, and the child putrid. We think this short record should have formed part of Dr. Hamilton's duty, when he discharged the other so fully. He states "that in the course of his practice (now extending to near half a century) he has met with no case where he could not accomplish the operation of turning." This statement we fully believe; nor is it in the least likely that any experienced practitioner could meet with a case where by great exertion he would not succeed. The result however to the mother in cases of such difficulty is not unfrequently fatal.

To save her from this, the operation described is pre-eminently entitled from the success which I have witnessed by its adoption both in and out of Hospital, to my warmest recommendation. We have the mother only to consider, as, when the child is dead the mode of operating is of little consequence.

Fourthly, with respect to the treatment of convulsions in the latter months of pregnancy, or in the progress of labour, it appears to me necessary to make some remarks.

Doctor Hamilton observes, in bleeding the patient “he never directs less than about *fifty* ounces by weight to be drawn at first, and if there be not a decided improvement within the hour, he advises the *same quantity* to be again subtracted. He is quite convinced that no other than slight degrees of the disease can be expected to yield to bleeding carried to the extent of *twenty* or *thirty* ounces, a practice which he sees recommended by some respectable practitioners of the present day.” (Page 310.) Again, (page 329,) “after having subtracted a sufficient quantity of blood, delivery ought to be completed as *fast as possible*.”

I have stated in my Practical Treatise, page 211, that where convulsions occur at an early stage of the labour, or perhaps before there is a symptom of labour, the case is rendered very embarrassing; particularly when the fits are violent and frequent and the patient remains insensible during the interval; as when the practitioner wishes to effect delivery he finds it difficult or impossible to do so with safety to his patient. In such cases I have almost invariably adopted a plan of treatment, with the most marked benefit, of which, as it is not recommended by any writer on the subject that I am aware of, nor indeed did I ever know of it being pursued by any individual in practice previous to my using it in the Hospital, I shall give a short statement. In every severe instance of convulsions, after having carried into effect the ordinary mode of treatment, as *bleeding freely, acting briskly* on the bowels with calomel and jalap, and at the same time adopting the means usually had recourse to for protecting the patient from injury during the paroxysm, I endeavoured to bring her under the influence of tartar emetic, so as to nauseate effectually without vomiting. With this view a table-spoonful of the following mixture was given every half hour.

℞ Aquæ Pulegii ℥vi ii

Tartari Emetici gr. viii.

Tincturæ Opii gutts. xxx.

Syrupi Simpl. ℥ii. M.

In some cases the quantity of tartar emetic used was only four grains to an eight ounce mixture, and in others the quantity of opium was somewhat increased. Pounded ice or cold water applied to the head, I consider useful; however, when the convulsions continue violent, and the patient's strength permits, a repetition of the bleeding *must* be had recourse to.

To avoid this *injurious necessity*, which is of much importance to the patient's *recovery* and *future health*, and to produce *relaxation*, so as to facilitate the dilatation of the mouth of the womb and soft parts, and at the same time lessen the frequency and violence of the fits, I consider the tartar emetic of eminent service.

I can from experience confidently recommend its use to the profession, in *all cases* where the practitioner either finds delay necessary previous to effecting delivery, or where he is disposed to trust to the efforts of nature. In the treatment of a patient labouring under convulsions, the main object being to gain time, and meanwhile guard the female against a frequent return of the fits, or what is even of more importance their violence. I would strongly caution junior practitioners to avoid hasty measures for the delivery of the child, which perhaps alarm for the mother's safety might induce them to have recourse to. When the case is such as to admit with propriety the application of the forceps, *no delay* should be made, but in the great majority this instrument is inapplicable.* Where the forceps can be applied, there are few situations in which this instrument can be used with such decided advantage, yet the favourable result under such circumstances is by no means

* Of one hundred and eleven cases recorded by Drs. Joseph Clarke, Merriman, Ramsbotham, and myself, the forceps was only used in eighteen.

entirely owing to its use, for the labour being *so far advanced* as to admit of this mode of delivery, very greatly lessens the danger. Of *thirty* cases occurring in the Hospital during my residence, *fifteen* were delivered by the natural efforts, and all recovered; as did also *six* delivered with the forceps. Of *eight* delivered with the crotchet, five died. *Three* of the five were complicated with laceration of the vagina; *one* with twins; and *one* with peritoneal inflammation.

It requires considerable practical experience on the part of the physician, to select the proper time to interfere, where there are so many circumstances to be taken into consideration. Next to the mother's life, there is the life of the child to be attended to; and here the stethoscope is of incalculable benefit, enabling us to detect the continuance of its life, or *its death* at an early period after the latter event has taken place; yet even the most satisfactory evidence of the child's death will not warrant the practitioner's *hurrying* delivery, there being other points of paramount importance to be attended to, viz. the state of the os uteri and soft parts; as the convulsions could hardly fail in every instance to be greatly aggravated by forcing the child through these parts when undilated and unyielding. The after consequences of a delivery thus effected would prove far more dangerous to the patient than a repetition of the fits, so long as she had strength to bear them, even with tolerable safety. It is of vast importance to effect the delivery of a patient when suffering under severe convulsions as speedily as possible; but to combine safety with this truly desirable object there is need of much patience and caution.

Such is the treatment our observation warrants us in recommending, as most successful in puerperal convulsions; for although *copious* bleeding is indispensable, yet I am fully satisfied that after the *first* removal of blood the tartar emetic has the happiest effect, and will in most cases prevent the necessity of *extreme* bleeding, which is too often ruinous to the patient's constitution. We have ourselves removed forty or fifty ounces

of blood at *once* ; but the removal of *one hundred* ounces from most women in the course of an *hour* is unquestionably much calculated to seriously injure the future health ; and it is in order to substitute a harmless for so *severe a measure* I have said so much. My opinion as to the speedy delivery of the patient is expressed above, which a perusal of the cases recorded by me fully supports. I need only add, that so long as the child continues to *live*, and where the delivery can alone be effected by opening the head, nothing but *dire necessity* should make us resort to this measure ; besides observation has satisfied me, that except under most urgent circumstances, the female's safety is much more endangered than secured by delivery where the mouth of the womb is not so much relaxed and dilated as to admit of its accomplishment without much exertion. Dr. Hamilton urges "the importance and utility of extracting the infant by the *speediest possible* method, for he can solemnly assert, that since the year 1791, he has witnessed only *two* fatal cases of convulsions during labour."—(Page 330.) (Since 1800, page 310, *three*?)

We report *five* occurring in 16,414 deliveries ; it would have gratified us much if Dr. Hamilton had stated his in the same way.

Doctor Hamilton, in urging the *speediest possible* method of delivery, states, "if any additional argument in favour of this doctrine were required, the author might appeal to the fact admitted or recorded by the most respectable authors, that the infant expelled *naturally*, where the mother has been convulsed, has *usually* been *still-born*."—(Page 332.)

This is not the result of our experience. In the thirty cases of convulsions reported, *fourteen* of the thirty-two children (two of the women having had twins) were born *alive* ; *nine* of which were expelled *naturally*. This proves the necessity of due caution, and also the great practical utility of the stethoscope.

I have now concluded the observations which the state-

ments contained in Professor Hamilton's work required on my part ; and I should hope, it will appear to all those who examine the subject with attention, that my reasons for dissenting from his views are not trifling, but based on the results of experience alone. Although we differ in opinion on many points of practice, I feel we are alike at liberty to do so, and fully justified in making known what we conscientiously believe most useful ; and I am equally satisfied, the object of both is the alleviation and welfare of our fellow-creatures. It is chiefly by those, who have extensive opportunities of accumulating *facts* publishing the results, that this all-important object can be promoted, or our profession benefited. To Professor Hamilton, I, as an individual, (and I have no doubt the profession at large,) feel greatly indebted for devoting so much of his valuable time in order to publish the results of his observations for so vast a series of years, acquired from an extent of practice which falls to the lot of few.

I cannot help stating the additional pleasure and real satisfaction I should have experienced, if Professor Hamilton had embodied with his highly interesting work, a brief report of the Edinburgh Lying-in Hospital, of which it is so well known he has had the medical charge for nearly half a century. This indeed would be of great value, as a report of the cases taken during the progress of the patient's illness, *marking the cause* of interference, in those cases where a deviation from the *ordinary* treatment was had recourse to, would be highly instructive ; at the same time making us acquainted with the *result* in *all* cases to both *mother* and *child*. Without the *latter* no correct opinion can be formed of the eligibility of any line of practice recommended. I anxiously hope for this information with respect to the Edinburgh Hospital, even for half the period mentioned, so as to enable us, as stated by Dr. Hamilton, "to contrast the result of his practice with the recorded evidence of the protraction of labour in London, Paris, and Dublin." We believe as implicitly the general assertions made by Dr. Hamil-

ton as we would our own ; but knowing how *different* the adding together a registry of *facts* proves the result to be, from the *previous* impression on the mind, our faith is more than wavering, and particularly when the evidence is opposed in principle to the opinions of many physicians, based upon the most accurate records in England, France, and Ireland.

I should hope the general statement given in the present hurried communication, (with regard to the practice pursued in our Hospital during my residence in the several important occurrences wherein we differ from Professor Hamilton,) shews to actual demonstration, that so far as the *safety* of the patient is considered, *no* deviation is necessary. If we consider the class of patients admitted into the institution, where *extreme poverty* is the *only* passport demanded, and the very great number received as already noticed, after having been *one, two, three* or *more* days in labour, most of whom are grossly mismanaged ; besides, the numerous cases sent in actually almost dead, as the reported cases witness, the success of the treatment pursued will be still *more* apparent.

It is obvious the regulations stated are calculated to create a *large* increase in the mortality of our Hospital, when compared with most similar charities, where females in *extreme distress* are nearly excluded, by the admission of tradesmen's wives, and such as are married only ; besides in some, the reception of the patient *days*, or even *weeks* before delivery ; whereas with us, she is alone taken in when the hour of *trial* is at hand.

The circumstances just noticed with regard to the *mother*, must in an equal degree add to the number of *children* still-born ; yet that the *proportion* of children still-born in consequence of the labour being *protracted* or *severe* is comparatively *very small*, is proved by the *fact*, that of 1045 cases accurately noted in the Hospital, *eight hundred and forty-four* were delivered within *twelve hours*, and *nine hundred and thirty-two* within twenty-four hours. Neither is the death of the child

subsequent to birth except in *very few* instances, comparatively speaking, a consequence of injury arising from *protracted* labour, as the result of our Hospital demonstrates; thus of the *total* number dying (284) previous to the mother leaving the institution, the labour in *two hundred and forty-six* did not exceed *twelve hours*.

These *truths* are all clearly shewn in the tables published by me, and markedly exhibit the great utility of registering *simple facts*, which, if accumulated sufficiently overpower all theory or argument opposed, and can alone form the basis of sound reasoning. I trust, in medical science the period is not remote, when statements made unsupported by *proof*, will be looked upon as more calculated to mislead than direct; which, indeed, would be a glorious era in the history of medicine, as a *speculative theory* has ever been the hot-bed of uncertainty in the physician's cure.

ART. VI.—*On the organized Bodies found in the seminal Fluid of Animals, and their Analogy to the Pollen of Plants.*

BY G. R. TREVIRANUS.

THE following interesting paper is taken from the fifth volume of Tiedemann and Treviranus's Physiological Journal. Like every thing coming from its illustrious author, it bears abundant marks of accurate observation and deep reflection; and we have very little doubt that Treviranus will ultimately succeed in establishing the very curious and remarkable analogy which he has been the first to observe and investigate.

“Although the beings termed seminal animalcules, have been frequently made the subject of observation for the last hundred and fifty years, the question as to their peculiar nature has never yet been satisfactorily answered. Since the abandonment of the opinions of Leeuwenhoek, who maintained that they were the germs of the embryos, they have been generally looked upon

as belonging to that class of animals which are generated in all infusions of organized substances. To the latter, it is true, they bear an external resemblance. But even in the case of infusory animalcules, our knowledge of all the individuals of this denomination is not sufficiently accurate to authorize us to place the whole in one and the same class. Ehrenberg discovered in many of these animals a more complicated internal structure than had been previously assigned to them : in many, for instance, he found a real mouth and intestinal canal. But many of them appeared, even under the best magnifying glasses, not more perfect in their interior than various hydatids and other secondary products of the formative organic powers. Among the latter products, the most noted are generally observed as excrescences from solid parts, and without any manifestations of motion. This, however, is not always the case. In man and other animals, hydatids are occasionally generated, which contain only a watery fluid enclosed in a vesicular membrane, and which have no connexion either with each other, or with the walls of the cavity in which they lie. Similar formations may be also very naturally produced in fluids situated in the interior or on the surface of organized bodies, may grow by the absorption of certain constituents of these fluids, and in consequence of the attraction they have towards some, and the repulsion towards other particles of matter, may be capable of exhibiting motions. Beings of this description cannot be ranged in the same division with the true infusory animalcules. Those which are met with in animal or vegetable secretions may form important constituents of the same, and contain a substance which may have a principal share in the functions of these fluids. Among beings of this kind we may, perhaps, place the seminal animalcula.

“These inmates of the fructifying animal secretion have been, for a considerable time, the subject of my observations. I have already made known in some of my earlier publications, two of the results obtained by my investigations ; the accuracy of

these results I have repeatedly tested within the last few years, whenever I had an opportunity of procuring fresh semen from animals recently killed, and I have found them verified in every instance. One of these is, *that the motions of these bodies occur either solely in the seminal fluid of animals in heat ; or, that they are observed to be much more lively during the period of heat than at any other time.* The physiologist may easily satisfy himself as to the truth of this assertion, by examining the semen of moles, frogs, and fishes, during the season of copulation, and beyond that period. During the former the semen is full of organized parts, which exhibit a lively motion through each other ; after the period of copulation is over we cannot discover any vital movement. In moles, whose testicles and seminal vesicles I examined about the last days of July, I could not discover any semen ; and the few drops of fluid which I obtained from those parts, exhibited no trace of seminal animalcules, or of motion. Many similar observations had been previously made by Buffon, Daubenton, and Needham, without attempting to draw from this fact the deductions which it affords. From being unacquainted with, or from not having observed this influence of heat on the constitution of semen, physiologists have occasionally denied the existence of seminal animalcules in the semen of many animals ; in which, however, they are undoubtedly present during the season of heat. Thus Prevost and Dumas state, in one of their earlier essays, that these animals are not contained in the seminal fluid of fishes. In a later publication M. Prevost mentions that he had found them in the semen of the *Mullus Gobio*, but does not give any explanation as to the cause of the discrepance between this and his former experiments ; a discrepance which can only be attributed to the difference of the seasons at which he made the seminal fluid the subject of his observations. I examined the semen of various insects during many summers, without finding in it, except very rarely, any parts exhibiting traces of motion ; as my examinations had been made during the pairing season of these animals, this result appeared to me at first extremely remarkable. Dissection

afterwards revealed the cause of this apparent anomaly. Among animals of this kind, whose lives last only for a single summer, and particularly among butterflies, it by no means happens that all individuals possess the power of procreation. This is most striking in the females, many of which, even in autumn, have ovaries containing immature ova; still the motions observable in the seminal fluid of invertebrate animals are never so lively as those observed in the semen of the vertebrate. Had I not occasionally seen, in the case of the former, these organized bodies change their forms by evident contractions and extensions, I should certainly think they were without any motion dependent on internal causes. I have observed these changes of form, particularly in the organized parts of the male semen of the *Cantharis Livida*, which I had killed during copulation, and then immediately opened. This observation of mine on the microscopic bodies observed in semen, is supported by the observations made by earlier writers—that the semen of very young, of very old, and of hybrid animals, as for instance the mule, does not contain any seminal animalcules.

“The second of my observations is, *that although the organized parts of semen possess a proper motion, they are also carried onwards by currents which take place in the fluid portion of the semen.* The same observation was also made before me by Von Gleichen, but did not attract any notice, notwithstanding its strong claims to attention. This motion occurs only at the period of heat. I have seen the most striking examples of it in the semen of frogs, which I had opened shortly after awaking from the state of hybernation. It is consequently not entirely peculiar to the seminal fluid of warm-blooded animals, in which it was noticed by Von Gleichen. It exhibits itself but feebly in undiluted semen; this, however, arises from the viscid nature of that fluid. Still the seminal animalcules manifest even in it feeble motions; but the latter become exceedingly energetic the moment a small quantity of

water is added to a drop of semen placed on the *pôte-objèt* of the microscope ; they continue, however, only a short time.

“ To these earlier observations I can now add a third, which appears to me deserving of attention. I think I have discovered, *that the organized parts of semen are not in reality animals, but bodies analogous to the pollen of plants ; that these bodies form on the internal surface of the vessels engaged in the secretion of the seminal fluid ; that in many animals they are furnished with peduncles ; that for peduncles they have the filaments of a layer of extremely delicate fibres, with which the surface of the secreting vessels is covered ; that at the period of their maturity they detach themselves from these surfaces, sometimes with and sometimes without the peduncles ; that they appear to contain the proper fructifying matter ; and that in some animals they discharge their contents within the testicle, and in others not until they have escaped from that organ.* The facts on which these propositions are based have been verified only in animals of the lower classes ; but all circumstances lead to the conclusion, that they are equally true with reference to man and the higher animals.

“ It is well known, that at the posterior end of the abdominal cavity in snails, and connected with the liver, there is a gland composed of roundish sacculi, and from which a winding duct extends to the uterus. In a former essay I have termed this gland the racemiform organ, and expressed my suspicions that it was a testicle as well as an ovary. I subsequently, however, found in the organ which I termed the maternal gland, and of the peculiar function of which I was then uncertain, bodies, which had the appearance of ova. I therefore look upon the racemiform organ at present as the testicle, and the maternal gland as the ovary ; and for the future I shall understand the former under the name of the testicle. Through the excretory duct of this testicle, a thick milk-white secretion flows, which, when examined by a glass capable of magnifying three hundred diameters, is observed to contain long hair-like fibres, which

contract into serpentine folds on the addition of water, and also bodies having the appearance of round discs, consisting of very minute vesicles enveloped in a common external covering, and about 0,02 of a millimeter in diameter. I shall call these bodies for the future by the name of discs, in order to distinguish them from the vesicles they contain, although I cannot say whether they are in all cases actually flattened on both sides. The vesicles form within them a round mass, which is often smaller than the space enclosed by the external membrane. Under such circumstances, the discs appear as if surrounded by a transparent ring, which encompasses a circular space covered with minute globules lying close together. The sacculi of the testicle are also filled with a whitish secretion, more fluid in general than the former, and in which the peduncles or filaments, before described, are seen swimming; it also contains a much larger quantity of discs. The discs are partly attached to the filaments, and partly separated from them. On examining more closely the latter fluid, and the sacculi in which it is contained, the following circumstances are observed:—The filaments at their origin lie parallel and close together, and form a species of fibrous membrane, which covers the internal surface of the sacculi before mentioned. The ends of the filaments project into the fluid, and form an annulus which encloses a disc. The fibres gradually separate from the surrounding parts, and the discs from them. The ends of those which have lost their discs, bend backwards, and twist themselves in a spiral form round their own stems. These, as well as the filaments, escape with the secretion of the testicle into the excretory duct. But as the number of discs found in the latter is much smaller than in the testicle, and yet there is no accumulation of discs observed in the testicle, we are obliged to conclude that they discharge their contents in their passage into the excretory duct, and that their external covering is then dissolved.

“These observations were made chiefly on the *limax ater* and *helix nemoralis*. If the seminal fluid of these animals be ex-

amined at different periods of the year, the proportion of the discs to the vesicles and peduncles is found to differ very much on many occasions. Sometimes, one perceives only a few quite transparent discs ; but, on the other hand, a great many vesicles and peduncles separated from their discs : at other times, only a few vesicles are observable, but we see a great many discs filled with a dark matter, partly resting on their peduncles, partly detached from them. Occasionally, one can see nothing but vesicles and peduncles without discs. Thus, in two wood-snails, which I opened on the 13th of May, the organized parts of the seminal fluid, magnified three hundred times, presented the following appearances :—A drop of the secretion of the testicle, diluted with water, was observed to contain merely discs and vesicles. The discs were quite empty, and the vesicles appeared like points. A drop of the secretion found in the excretory duct of the testicle, when submitted to the same process, presented very different phenomena ; it contained only peduncles, which had separated from the discs, and of which the ends were disengaged and bent back towards their stems. On the other hand, in a wood-snail which I examined on the 1st of June, neither the secretion of the testicle, nor that found in its excretory duct, contained any discs, but merely peduncles and vesicles, the former only in the secretion of the testicle, the latter in the secretion found in the excretory duct. In other respects, both the fluids are white and opaque, and the latter is generally thicker than the former ; but in this instance the first was of a milky appearance, the latter clear and semi-transparent. The causes of these differences can depend only on the circumstance, that the discs separate from their peduncles, sometimes at an earlier, sometimes at a later period, and at one time expel the vesicles contained within them in the testicle, at another time not until they have got into the excretory duct.

“ In the sacculi of the dew-worm, which lie between the ovaries at their base, opening into the excretory ducts of the latter, and containing a thick, yellowish secretion, I have also discovered

long filaments of this description, contracting into a serpentine form when the secretion is mixed with water, and resembling those met with in the *limax ater* and *helix nemoralis*. In this animal also, they cover the inner surface of the sacculi in layers, like tufts of hair. The seminal secretion, however, only contains globules of a smaller size, unconnected with the filaments, and which I always found devoid of motion. On the other hand, in the secretion of four sacculi which lie at both sides of the ovaries, I observed very fine streaks and globules, in both of which lively and continued motions occurred on adding water to the secretion.

“ In the medicinal leech (*hirudo medicinalis*), and the horse leech (*hirudo gulo*), the fructifying secretion is found in two organs composed of small twisted cul-de-sacs, situated at each side of the reservoir of the penis. These organs were formerly regarded as a kind of epididymis, or as seminal vesicles. The secretion is full of bodies, which consist of small vesicles, having an irregular form, and exhibiting only very slow motions. Between these, short and tolerably thick peduncles are seen, instead of long, thin filaments.

“ The animals referred to in the foregoing observations are hermaphrodites ; and it may certainly be urged, that the results obtained from an examination of the productive secretion, which in them is the male semen, do not authorize us to draw any direct conclusions with reference to the seminal fluid of those animals, among which the different parts of generation are possessed by different individuals. But the observations which I have made on the organized parts of the semen of winged insects agree very closely with what I have discovered in snails. I made these observations chiefly on the *Cantharis Livida*, which pairs through the whole month of July, and can be collected in great numbers. This beetle has two testicles, each of which is composed of an extremely delicate vessel, covered with brownish red vesicles, and emptying itself into a muscular seminal reservoir. Viewed through a glass of a magnifying power

of 300, round figures are seen on the internal surface of the secreting vessel ; and on tearing the latter, a whitish fluid escapes, which contains round disciform bodies, along with a mass of very minute vesicles. These discs bear a strong resemblance to those found in the secretion of the testicles in snails ; but they are smaller, being only 0,006 of a millimetre in diameter. Many of them possess, like those of the snail, a border consisting of a transparent ring, and a filamentary attachment, which, however, is shorter and not so rigid as that found in connexion with the discs observed in the seminal fluid of snails. Their internal composition cannot be distinctly ascertained, even with the assistance of a glass capable of magnifying about 500 times. They move but slowly ; they change their forms, however, from time to time by contractions, and occasionally turn round in such a manner as to exhibit their small sides, on which they appear of a lenticular shape. On detached portions of the secreting vessel they are sometimes seen in congregated masses, resting on their filiform attachments, like whorls on their peduncles. The minute vesicles above mentioned can be regarded only as the contents of the discs, part of which have burst. They lie between the discs, and seem to be the contents of those which have emptied themselves.

“ In females of this species of *cantharis*, which I had killed during copulation, a large quantity of clear fluid gushed out when the abdomen was opened. This fluid coagulated into a gelatinous mass in water. From the vagina, I obtained a whitish secretion, which contained the same vesicles found in the vicinity of the discs in the seminal fluid of the male, but no discs. On mixing this secretion with water, weak currents were observed, which appeared to be independent of any mechanical cause.

“ I have found much larger discs, and bearing a closer resemblance to those observed in snails, about the end of May, in the secretion of the seminal vessels of the May beetle, although not caught during the time of pairing. Some of them were sur-

rounded by a small annulus like those of the snail, and full of dark molecules in the interior. Some of them had a vesicular nucleus in the centre. Between them lay scattered particles, which appeared to be fragments of the lining membrane of the secreting vessels, and from which short straight filaments projected.

“ I also found, on the 9th of August, in the round testicle of the papilio brassicæ, which is covered with a brown pellicle, tufts of hair-like filaments, and discs exactly resembling those observed in the secretion of the testicle in snails. The filaments, however, were finer, and the discs somewhat smaller than those of the latter. No trace of motion could be seen in them. The testicle of a Papilio Io, which I opened on the 6th of August, contained a greyish secretion, in which I found discs and vesicles exhibiting a slow motion like the molecules of Brown. Most of the discs had discharged their contents, and contained only a small nucleus, which in many of them appeared like a mere point. The vesicles also looked only like dark points when magnified three hundred times.

“ If these observations of mine be compared with the descriptions and plates which Von Gleichen, the most accurate of modern observers in this department, has given of the organized parts of the seminal fluid of man, the dog, ass, horse, bull, goat, hare, and frog, a partial difference of form will certainly be observed between the latter and those which I discovered in the invertebrate animals already mentioned ; in other respects, however, the former as well as the latter are furnished with peduncles, from which they detach themselves on the admixture of water with the semen, and they do not possess such an internal organization as would authorize us to place them in the class of self-existent animals. The organized parts in the semen of the fish differ still more widely from the organized products found in the seminal fluid of the invertebrate animals. These have always appeared to me merely as simple non-pedunculated vesicles, from 0,0011 to 0,1600 of a millimetre in diameter.

In undiluted semen, they often lie so close together that they cannot be distinguished from each other. In this instance, the vesicles which constitute the most important part of the semen, which in all the other classes of animals are combined together in masses covered by a common integument, and escape singly from this envelope only at a certain period, appear to have been contained in the fluid portion of the semen from the very commencement.

“Hitherto, the motions exhibited by the organized parts of male semen, have been looked upon as analogous to those of the true infusory animalcules. From these, however, they differ very much. The infusory animalcules, it is true, exhibit continued motions; but from time to time they pause, in general, however, only for a moment, for the purpose of taking nutriment. But we never observe these interruptions of motion from internal causes in the bodies found in semen. Those met with in the semen of the feræ and birds, swing back and forwards like a lifeless pendulum, as long as they remain attached to their peduncles. When detached, they range continually over the field of the microscope, without stopping any where. The long peduncles of the discs, in the seminal fluid of the snail, twist and bend themselves; still, merely in the same way as dead elastic filaments, which attract water, which pass from a state of dryness to a state of moisture, and *vice versa*. The motions of the vesicles in the semen of fishes resemble the molecular motion described by Brown, except that in matured semen it is much more lively than in the atoms of lifeless bodies. In the seminal fluid of a bream, which I examined in May, I saw these vesicles attract and repel each other, on diluting the semen with water.

“From the observations which I have now communicated, the reader will not fail to recognize a strong analogy between the organized parts of animal semen and the pollen of plants. The latter, just like the former, is composed of an aggregate of

vesicles, surrounded by a common integument, and containing the proper fructifying matter, and which, when moistened by the fluid that exudes from the stigma and nectaries, at the period of their maturity, quit their investment. The pollen globules of many plants, particularly in the unripe state, are so like the bodies found in the seminal fluid of the snail, that any one who saw one or the other under the microscope, without knowing whence they were taken, could not say whether they were of animal or vegetable origin. I found this resemblance to the bodies already described, among others, in the unripe pollen of the larch.

“ On the other hand, there are undoubtedly points of dissimilarity between the organized parts of animal and vegetable semen. The differences, however, are unimportant. In the first place, there is an absence of all motion in the pollen. We have seen, however, that in the seminal fluid of many of the lower animals, only feeble motions are observable. Again, the globules of pollen are without peduncles. Although Turpin and Decandolle suspected that they were always connected to the anthers by filaments during the first stage of their formation, and although in the *Clarkia Pulchella*, I have myself found many of them attached to filaments which proceeded from the fibrous coat of the anther, still, I have not been able to discover a connexion of this kind in any other plant which I examined, even during the first stage of the origin of these globules. I dissected the rudiments of the following year's flowers on a *Daphne Mezereon*, in the middle of October. The anthers had even then a yellow colour, and had nearly attained their full size. The pollen globules contained within them lay in a yellow firm matter, but were almost destitute of colour; from their transparency, I was able to distinguish in them the external integument, which consisted of cells arranged in a reticular manner. There was no trace of peduncles to be seen in them. I also found the anthers of the female flowers of the hazel filled with pollen globules, as early as the commencement

of October; their contents consisted of a semi-transparent uniform substance, lying in a fluid matter, and having no connexion at any point with the walls of the anther. But although in the animal kingdom the connexion of the seminal corpuscles with the internal surface of the testicle is very frequently by means of a peduncle, still, this mode of connexion, even in them, is not so universal that we should look upon it as something essential.

“The pollen globules of plants do not swim in a fluid while they remain in the anthers. The semen of animals, also, is originally composed almost entirely of organized parts, which are contained in a quantity of mucus, small in proportion to their mass. It is chiefly in its transit through the excretory ducts, that it is diluted by the fluids which are mixed with it in these canals. Fluids of this description are also effused on vegetable semen. In many plants, the stigma secretes a watery substance, causing the pollen globules which lie on it to open; in others, a considerable quantity of this kind of fluid is secreted by the nectaries, while from the stigma, a viscid juice exudes in smaller quantity. The latter occurs in the *Iris* tribe and the *Asclepiadiæ*.

“In what way the seminal bodies of animals discharge their contents, has not yet been observed. It is not probable that the same occurrence takes place in them as in the pollen globules of many plants, viz. the escape of their contents from the investing membrane in the form of a long filiform cylinder. I have, however, observed this mode of exit only in a small number of plants. The reason why the matter contained in the pollen globules of such plants is discharged in this way, is, because it is enveloped in a considerable mass of viscid mucus, which, when forced through a narrow opening in the membrane, by the contraction of the external coat of the globule, is drawn out into a filament. I have never found it, like an offshoot, proceeding from the globule, a point of view in which the filament has been regarded by A. Broignart and Amici. Neither have

I been able to convince myself of the truth of an opinion advanced by these and other phytologists, that these pretended offshoots from the pollen globules penetrate through the stigma and style into the ovary, notwithstanding the great importance I attribute to other observations of many of these naturalists.

“The following are the results of the numerous investigations which I have made on this phenomenon for the last three years. As soon as the pollen globules have discharged their contents upon the stigma, and fructification is accomplished, the papillæ of the stigma begin to separate from each other. The papillæ are terminated by a bundle of long capillary fibres, passing from the ovary through the style to reach the stigma. These fibres are always accompanied by elongated cylindrical cells, and usually, but not in the grasses, by spiral vessels, and are distinguished from the sap fibres by their greater length and delicacy. Frequently the ends of the filaments which proceed from the pollen globules, are attached to the ends of these capillary fibres, between the papillæ of the stigma, in such a manner, that the filaments seem to be continued into the fibres, and this connexion appears to be the principal cause which has given rise to the opinion already noticed. But we find many filaments connected with the papillæ, by means of the viscid secretion of the stigma, as well as with the fibres. This viscid secretion also frequently contracts, particularly on the withering stigma, into long thin filaments, which swell up in water. Many of the fibres become distended at this period, and contain a dark matter, frequently connected with the pollen globules, and resembling the substance found in the latter. But I have observed a similar distention in the fibres of the style, and a similar substance in these fibres, as well as in the cells of the style and stigma of flowers that had not been fructified.

“Another circumstance also, which may, and very probably has given rise to deception in this matter, is this ;—in some plants the papillæ of the stigma are of a globular shape, and immediately connected with the fibres before described ; in others,

we find, under the cells of which the stigma is composed, globular cells, in which the fibres of the style terminate. The former is the case in the *Hypericum perforatum*, the latter in the *Cypripedium calceolus*. When the stigma and style in these plants have dropped off, the round cells with the fibres attached to them might be mistaken for globules of pollen, with their offshoots forcing their way through the style.

“ To illustrate these remarks, I communicate here some detached observations on the state in which I found the stigma, style, and pollen of different plants, after the parts of the flower had withered, in cases where fructification had been accomplished, and where this process had not taken place. What I shall say with respect to the *Iris pseudacorus*, will at the same time serve to determine more accurately the mode of fructification in these plants, and to rectify the earlier observations which I made on this point in vol. ii. sect. 2, of my work on the *Phenomena and Laws of Organic Life*.”

Treviranus then proceeds to describe the phenomena of fructification in the *Hermerocallis flava*, *Iris pseudacorus*, *Cypripedium calceolus*, *Tellima grandiflora*, and *Hypericum perforatum*, and concludes by observing, that the last result of his comparison of animal and vegetable semen is, that externally there is no essential difference between them. He thinks, therefore, that the term “ animal pollen ” would be a more appropriate name for the organized parts of animal semen, than the appellation seminal animalcula, by which they have been hitherto designated.

The two following papers, extracted from Müller's *Archiv für Anatomie Physiologie*, &c. for 1836, are annexed, as calculated to furnish some additional illustration of the history of the *Spermatozoa*.

On the Development of the Seminal Animalcula. By Professor WAGNER.

Professor Wagner's researches on the development of the seminal animalcula, are limited to the Class, *Aves*, Order, *Pas-*

seres ; the common yellow hammer (*Emberiza Citrinella*) being the species selected by him for observation.

“ If the contents of the testicle of the yellow-hammer be examined in winter, the seminal fluid is found to contain only small granules, or globules of a granular appearance, from $\frac{1}{150}$ to $\frac{1}{300}$ of a line in diameter; intermixed with very minute globules and points, and exhibiting molecular motions—but no trace of seminal animalcula.

“ In spring, when the testicle swells, these granular globules appear under various forms ; between them the seminal animalcula are seen in bundles, and also single and detached. The seminal animalcules have their origin in peculiar vesicles or sacs consisting of an extremely delicate membrane ; the smallest of these sacs are round or oval, and measure $\frac{1}{50}$ of a line. The seminal animalcula are of a linear form, and have their anterior end twisted spirally like a corkscrew ; they lie close together with their posterior or tail ends bent. In the free spaces between them, very minute granules or globules are seen, which look like the delicately granulated matter of yolk of egg. About this period the sacs increase in size, and with them the animalcules ; the former become elongated, and when matured, the anterior clubbed end only is visible ; the finely granulated matter gradually disappears, the delicate walls of the sac lie close behind, and its posterior end vanishes ; so that in this situation the tail ends of the animalcules appear free, and without any enclosure. At this period the sac, with its bundle of animalcula measures $\frac{1}{25}$ of a line in length, and $\frac{1}{100}$ in thickness.

“ When the anterior clubbed end of the sac bursts, (as occurs under the microscope and in water), the bundle of seminal animalcules spreads out like a fan ; the spiral ends separating from each other, while the tail ends remain together. Whether this mode of escaping from the receptacle or sac, be also the mode in which their vitality becomes developed on arriving in the vas deferens, I know not.

“ Single animalcula from the testicle, when magnified more

strongly, present the following appearances: In some the anterior end commences in the form of a hook; in others of a knob; it then passes into the body which is thicker, and twisted in a spiral manner, and this runs into an extremely fine linear tail, about $\frac{1}{2000}$ of a line in thickness. Seminal animalcula of this kind are from $\frac{1}{35}$ to $\frac{1}{40}$ of a line in length; and the tail end is frequently bent so as to form a loop or eyelet. I have not observed any vital motion in the seminal animalcula in the testicle."

"If the seminal fluid in the vas deferens be examined, the animalcules are seen without any enclosing membrane, in close, tangled masses; each measures from $\frac{1}{20}$ to $\frac{1}{25}$ of a line in length. Granules are observed here also, as in the seminal fluid of the testicle, but much fewer in number, and of one description only; they resemble the smallest sized ones found in the seminal fluid of the testicle, and are from $\frac{1}{300}$ to $\frac{1}{400}$ of a line in diameter. For a period varying from five to ten minutes after the death of the bird, the seminal animalcules of the vas deferens exhibit a remarkable motion round their own axis; the spiral end making a boring motion under the microscope, while the tail end remains straight and inflexible.

"It has been already stated, that the seminal animalcula and seminal granules swim in a transparent fluid, probably of an albuminous nature, but of a very thin watery consistence. This fluid, which, like serum, cannot be seen under the microscope, is rendered visible by adding to it a portion of spirit of wine, &c. It then becomes turbid, and has the appearance of an extremely delicate granular mass, diffused among the seminal globules and animalcula. In this fluid we find:—

1. Small dotted granular globules, $\frac{1}{400}$ of a line in diameter on an average, and which might be compared in some measure to the globules of pus or mucus.

2. Larger globules, (discs?) measuring from $\frac{1}{150}$ to $\frac{1}{200}$ of a line in diameter, and containing one or more dark molecules.

“ 3. Vesicles, measuring from $\frac{1}{100}$ to $\frac{1}{70}$ and $\frac{1}{60}$ of a line in diameter, and enclosing several granular globules; the number of these varies.

“ 4. Similar large round bodies about $\frac{1}{60}$ of a line in diameter, and containing within them granular masses.

“ The question now arises, have these bodies, from 1 to 4, any relation to the development of the seminal animalcula? From 2 to 4, I suspect they may. Thus, in some of them we often perceive groups of dark linear streaks in the midst of the granular mass. These are probably the first rudiments of the seminal animalcules, and may constitute the earlier stage of their development. Besides, the granular mass, which may be compared to yolk of egg, is also seen in some of the sacs at a more advanced stage, and when the latter become elongated, and open posteriorly. But if the bodies from 2 to 4 were constituent and essential parts of semen, we should meet with them again in the vas deferens. This, however, is not the case; for here we find only the small seminal granules, or granular globules, described under No. 1, and measuring about $\frac{1}{400}$ of a line in diameter.

“ It is probable then, that the last-mentioned granules are to be looked upon as seminal bodies; if not, they are, perhaps, primitive ova from the reservoir of the spermatozoa. The former opinion appears to me, at present, as the most reasonable.

“ To avoid confusion, I have given the description of these bodies from a species of bird which can be easily procured. The seminal animalcula, and their mode of development, are very similar in the rest of the passerres, viz. *fringilla domestica*, *fringilla cœlebs*, *parus*, *alauda*, *sitta*, and *turdus*. Marsh and water fowl appear to have different forms, and there are even among the passerres slight shades of difference in the forms of the seminal animalcula. Among the passerres the chief differences seem to lie in the number of spiral turns, which include a larger or smaller portion of the length of the whole body. On

this point, however, I am not prepared to give any definite opinion, as these shades of difference may depend on many other circumstances besides varieties of species.

“With regard to the seminal animalcula found in the other classes of animals, my observations are not as yet sufficiently matured for communication. Any one, however, who reads the interesting essays, and inspects the drawings of Henle and Siebold will readily perceive the analogies between them. The same analogies will be at once perceived on comparing the seminal animalcula of the dog with those which I have figured as observed in the seminal fluid of the yellow-hammer.”

Further Observations on the seminal Animalcules of the invertebrate Animals. BY DR. C. T. VON SIEBOLD, of Dantzic.

Dr. Von Siebold states, that from the latest investigations made by him on the spermatozoa of the Helminthes, he is able to assert positively, that the seminal fluid of the Acanthocephala and Trematoda is inhabited by spermatic animalcules; but he has not as yet been able to discover them in that of the Nematodea.

“The seminal animalcula of the testicle of the Echynorhynchus angustatus, acus, and proteus, consist of elongated, hair-shaped bodies, collected together in tufts. At the periphery of the tuft, these bodies are seen, with their free ends projecting to a considerable extent, and twisting back and forwards with a lively motion. Besides these tufts, numerous colourless vesicles are also seen, generally collected in clusters to the amount of from five to twenty, and forming so many vesicular masses. The vasa deferentia contain a dense, tangled mass of seminal animalcula, so that when one of these vessels is torn, the peculiar constitution of the fluid that escapes cannot be at first divined, and our attention is directed to its true nature, chiefly

by the ends of the individual hairs which project from the circumference of the tuft, and twist themselves in a serpentine manner; all doubts, however, are cleared up, when the mass is spread out over the field of the microscope. If the seminal fluid be mixed with a little water, the hair-shaped bodies, having first formed perforations in their own substance, and rolled themselves up into loops or eyelets, immediately cease to exhibit any motions."

Dr. Von Siebold examined the constituents of the seminal fluid in the *Distomum hepaticum*, *D. tereticolle*, *D. nodulosum*, and *D. globiporum* only, the season of the year not permitting him to extend his researches further. Having minutely described the anatomical peculiarities of these animals, he observes:—

"The seminal animalcules of these four varieties of *distoma* agree perfectly in their exterior. They are elongated, hair-shaped bodies, in which one cannot distinguish either a head or tail end. When seen in a living animal, and not lying too close together, they exhibit an incessant serpentine motion, without being capable of changing their place; when taken out of the living animal, their movements are by no means so lively. Besides the seminal animalcula, no other bodies are to be found in the *vesiculæ seminales*, except that here and there one of the molecules of Brown makes its appearance, and then as suddenly vanishes, while an equally evanescent molecule emerges into view at some other point. One would at first suppose that these were molecules driven to and fro by the motion of the seminal animalcula: this, however, is merely an optical deception.—As long as the seminal animalcules remain in the *vesiculæ seminales*, or their ducts, or in the uterus, the hair-shaped bodies do not exhibit either loops or rings; but when the semen is taken out and mixed with water, numerous round clear spots appear in them. If the mass be spread out so as to render the individual hairs visible, they are seen perforated in various ways, and rolled up into rings, or irregularly

bent backwards and forwards. Hence, the observer is falsely led to regard these rings as the heads of the seminal animalcules. Numerous Brunonian molecules are also visible ; these, however, may probably depend on an optical illusion. Shortly after the change just described, the seminal animalcules cease to exhibit any further manifestations of vitality."

Dr. Von Siebold next proceeds to describe the seminal animalcula as observed in the *Paludina vivipara*. This very curious species of snail has excited a good deal of the attention of naturalists from the circumstance of having separate sexes and the female being viviparous. The description of the spermatozoa in this animal is premised by a minute anatomical examination of the generative system in the male and female.

The semen of the testicle is composed of a whitish yellow fluid, in which, with the aid of a microscope capable of magnifying 130 times, two sorts of spermatozoa are seen. The larger sort is shaped like a worm, and is about 0,078 of an English line in length, and 0,0006 of a line in thickness. The whole body of this species of animalcule is colourless and transparent, and of an equal thickness throughout, except at one end, where it diminishes in size, and runs out into a point ; at the other end several extremely delicate fibres project, as if from a tube. The pointed end I shall for the future term the lower or root end, the end furnished with fibres, the upper end. The motions of these animalcules are extremely lively. They either bend back and forwards in large serpentine folds, (the upper end sometimes lying still, sometimes participating in these motions ;) or, the whole body of the animal is seen in a state of constant undulation, and bent slightly towards the rest. During all the motions of these animalcules no distinct change of place can be observed. Besides the motions performed by the body, the fibres which project from the upper end exhibit also a peculiar self-existent vitality ; they move restlessly to and fro, as if they wished to escape from the tube to which they are attached. On account of the great delicacy and mobility of these

fibres, I found it impossible to count them exactly ; their number however, cannot be less than seven. The second species of seminal animalcules required to be examined with more attention, as they consisted of extremely delicate linear bodies, the length of which might be about 0,033 to 0,022 of an English line ; their thickness could not be measured. Their root end is evidently thicker than the rest of the body, and is twisted like a screw : hence this part of the animalcule is most readily perceived. They do not exhibit any thing like the flexibility of the first kind of spermatozoa, and their motions consist merely in a peculiar vibration of the whole animalcule."

Dr. Von Siebold observes in the next place, that in order to examine satisfactorily the seminal animalcula of the *Paludina vivipara*, the semen should be mixed with saliva or with albumen diluted with water. He states that alcohol destroys them instantly, and that when mixed with watery solutions of sugar or salt, or with the serum of blood, they lose their mobility, but experience no further change. If the semen be diluted with pure water, the effects are still more remarkable. As soon as the seminal fluid is brought into contact with water, the worm-shaped spermatozoa become instantly rigid, straighten themselves, and swell out at some certain spot, and immediately afterwards the swollen spot opens out into a flat, compressed vesicle. Very frequently also they crack, and the fractured part immediately swells out into a vesicle as before. While the body is becoming rigid, the delicate fibres at the upper end cease to exhibit any further movements, and stand apart like a tuft of bristles. The hair-shaped spermatozoa conduct themselves in a different manner. Shortly after they are placed in contact with water, some of them appear perforated, others furnished with loops or eyelets in various ways, and some of them have the root ends broken off.

" If the seminal fluid of the *Paludina vivipara* be examined still more accurately, we discover among the worm and hair-shaped spermatozoa other bodies which are too constantly met

with not to deserve a particular notice. In the first place, we observe here and there, scattered through the seminal fluid, a granular, tenacious mass, to which small, transparent vesicles adhere. On further examination we meet with vesicles which are attached to the viscid mass by delicate peduncles. Close to these pedunculated vesicles, others of a pyriform shape are seen, which with their peduncles are implanted into the aforesaid mass; pyriform bodies of this description frequently lie together in close masses, in which we often find bodies whose pyriform shape is very much elongated. These bodies have occasionally a delicate peduncle projecting from their free end. Further, we perceive masses of bodies furnished with the latter kind of peduncles, some of which are more elongated than the rest, and exhibit contractions at some certain spot. Finally, we perceive very long, straight bodies adhering in tufts to the viscid mass, and having, at their free ends a delicate peduncle, which is frequently split into two or three delicate fibres. These latter bodies are equal in length to the worm-shaped spermatozoa, and bear a very strong resemblance to them. Now if we pursue our examination of these bodies from the vesicular up to the elongated form last described, and bear in mind, that the peduncles which project from the elongated bodies are occasionally found split into fibres, we may, without straining the fact too much, believe that we see here the gradual development of the worm-shaped spermatozoa from the vesicular to the most perfect form. The suspicion becomes a certainty, when (as I have frequently observed) one sees the pyriform bodies exhibit a tremulous motion, and the elongated bodies last described perform vermiform movements, often in a very lively manner."

Dr. Von Siebold was at first led to suspect that the linear spermatozoa were derived from the vermiform, but states that he afterwards discovered that they were self-developed. Among the rest of the figures observed in the seminal fluid, he noticed two kinds of bodies, one of which had the upper end enlarged, and the lower undulated and terminating in a point; the other kind

was split at the upper end into numerous fine points like hairs, while the lower end exhibited several dark undulated lines. These he looked upon as undeveloped masses or bundles of the hair-shaped spermatozoa.

In perusing the foregoing papers, the reader will perceive, that the statements of Professor Wagner or Dr. Rudolph do not exactly correspond with those of Treviranus. Professor Wagner describes the semen of the *Emberiza citrinella* as an homogeneous fluid, containing two sorts of bodies ; first, linear or hair-shaped bodies, having one of their ends twisted spirally like a corkscrew ; and secondly, globules of various sizes, and vesicles containing granular globules. The first kind of bodies, which he regards as the true seminal animalcules, are generally found in the seminal fluid of the testicle collected in bundles, and enclosed in a delicate sac, one end of which gradually disappears, and some time afterwards the other end bursts, leaving the linear bodies without any envelope. In the vas deferens, these bodies are mostly seen in close tangled masses, intermixed with the smaller kind of globules. Here also, according to Professor Wagner, they exhibit very remarkable vibratory movements, although he could not discover any trace of vital motion in them while in the testicle.

In Dr. Rudolph's account of the spermatozoa of the *Paludina vivipara*, we find two kinds of animalcules described. First, worm-shaped, transparent bodies, one end of which terminates in a point ; the other is furnished with a tuft of delicate fibres. The movements of these bodies, which are very active within the testicle, are oscillatory or undulating ; but they appear to be incapable of locomotion. Secondly, linear or hair-shaped bodies with spiral ends, very like those described by Professor Wagner, and exhibiting a peculiar vibratory motion within the testicle as well as in the vas deferens. Both these bodies, when mixed with water, exhibit alterations in shape, which consist, according to Dr. Rudolph, in the sudden appearance of vesicles

and perforations, or loops, at some certain part of the body. The globules, or vesicles, he represents as occurring in different forms, and under different circumstances. Sometimes they are in aggregated masses without peduncles ; frequently they are seen collected in clusters with their peduncles attached to a tenacious mass. In other instances they are elongated, and present an anterior delicate peduncle in addition to that which attaches them to the common tuft.

On the whole, however, these observers do not differ much from Treviranus ; nor does there appear any thing in their descriptions calculated to invalidate his statements. The tufts of Treviranus are described both by Wagner and Rudolph, with this exception, that they have not taken any notice of their adhesion to the sides of the secreting vessel. Professor Wagner describes these tufts as originally enclosed in a membranous vesicle ; this however, has not been noticed by any other observer, and very probable depended on an optical illusion. It will be perceived that Wagner corresponds very closely with Treviranus in his account of the globular bodies ; and I may add, that in the figures of these bodies, as delineated in their plates, there is a very remarkable similitude. There are also very obvious points of resemblance between the descriptions of the pedunculated vesicles given by Dr. Rudolph and Treviranus. It would appear that the chief sources of difference are referrible to the means of examination employed, and to the existence of pre-conceived opinions. The instruments used by Dr. Rudolph and Professor Wagner seem to be greatly inferior in power to those employed by Treviranus. Again, the two former regard the linear or hair-shaped bodies alone as the true seminal animalcula ; while Treviranus looks upon them as probably nothing more than mere peduncles or fibres of attachment for the vesicles, which contain the most important and essential constituent of the seminal fluid.

The seminal animalcula were first observed in the early part of the year 1677, by Louis Hamme, a German student, who was

at that time on a visit with Leeuwenhoek, to whom he communicated his discovery. This indefatigable observer immediately occupied himself with the subject, and in the month of November, 1677, transmitted to London an account of the discovery, with a description of the spermatozoa, in a letter to Viscount Bruncker, which was afterwards published in the 142nd No. of the Philosophical Transactions.* This communication was received with great applause; and the facts were shewn to Charles II. and many scientific individuals. They were subsequently examined and admitted by Hartsoeker (who also claimed the discovery), Asche, Huygens, Spallanzani, Haller, Bonnet, Morgagni, and several others; and engrossed a considerable share of the attention of physiologists about the latter end of the 17th century. These investigations subsequently fell into neglect; but appear about to be revived again in Germany, and in the hands of such men as Treviranus, Ehrenberg, and Purkinje, may ultimately tend to throw some light on one of the most obscure and interesting subjects in physiology.

* The following description of the seminal animalcula is transcribed from Leeuwenhoek's letter, which, as the classical reader will perceive, is not very remarkable for the purity of its Latinity: "*Minora globulis sanguini ruborem affertibus hæc animalcula erant; ut judicem, millena millia arenam grandiore magnitudine non æquatura. Corpora eorum rotunda, anteriora obtusa, posteriora ferme in aculeum desinentia habebant; cauda tenui, longitudine corpus quinquies sexiesve excedente, et pellucidâ; crassitiem vero ad 25. partem corporis habente prædita erant, adeo ut ea quoad figuram cyclaminis minoribus longam caudam habentibus optime comparare queam: Motu caudæ serpentino, aut ut anguillæ in aqua natantis progrediebantur; caudam octies deciesve quidem evibrabant antequam latitudinem capilli procedebant. Interdum mihi imaginabar, me internoscere posse adhuc varias partes in corpore horum animalculorum, quia vero continuo eas videre nequibam, de iis tacebo. His animalculis minora adhuc animalcula, quibus non nisi globuli figuram attribui possum, permista erant.*" Appended to this letter is another of a later date, containing an account of the spermatozoa of the dog and rabbit, and accompanied by a plate; in this plate the seminal animalcules are represented as consisting of a head and tail. The head is of an ovoid form, and is composed in some of three or four large bodies united together; in others it appears to consist of an aggregation of globules. The tail is long, slightly bent or undulated, and terminating in a fine point.

ART. VII.—*On the Occurrence of Crystals in the Intestinal Canal in Cases of Abdominal Typhus.* Communicated by Professor SCHÖNLEIN of Zurich, in a letter to Professor Müller.

“WHILE engaged in some researches on typhus abdominalis, for which a slight autumnal epidemic afforded sufficient materials, I have discovered some new facts, one of which I communicate to you, with a request, that you would be pleased to institute inquiries, with the view of confirming or extending it, in some of your large Berlin Hospitals, where examples of the disease are always to be met with.

“In the alvine evacuations of patients labouring under typhus abdominalis, a great number of microscopic crystals are observable; the forms of which I communicate in the accompanying sketch. Fig. 3 (a combination of a rhomboid prism, a rectangular pyramid, and a rectangular prism), and Fig. 10 (a combination of a rhomboid prism, of a rhomboid pyramid, and of a rectangular prism), occur most frequently. Fig. 11 and 12 are aggregations of crystals (chiefly of the two foregoing descriptions) lying in the matter, for the crystals, without doubt, form in the yellow matter with which the excrescences of the intestinal mucous membrane (the pretended ulceration of Peyer’s glands) are covered. I would be anxious to learn, whether you will find a larger number of crystals in Berlin, as those which I have figured were taken from about a dozen patients here. The crystals are in other respects quite clear and transparent, very friable, soluble in muriatic and nitric acids without effervescence, and, as far a cursory analysis goes, composed chiefly of phosphate of lime, with some sulphate of lime, and a salt of soda.

“The discovery of a peculiar system of crystals, formed during the morbid processes which accompany typhus, enlarges the circle of pathological processes, in a manner so much more

pleasing to me, as by means of this new link in the chain of processes connected with the formation of crystals, it exhibits in a novel point of view the relation of the latter to the former, of which the characteristic and distinguishing marks are the formation of epi-and entozoa, epi-and entophytes."

In a second communication, dated April 15th, 1836, Professor Schönlein observes :—

"The cases of typhus abdominalis which still present themselves from time to time, have enabled me to continue my researches on crystals occurring in the intestinal canal, and have so constantly shewn the presence of these bodies, that the fact may be fairly employed as an important diagnostic between typhus abdominalis, and febris gastrica, and erysipelatos, diseases which are related to typhus, bear to it a deceitful resemblance, occur contemporaneously, and are also accompanied by copious alvine evacuations, in which, however, a minute examination fails to detect crystals, just as in the excrements of persons recovering from typhus.

"In various kinds of diarrhœa, as that which accompanies ulceration of the bowels in phthisis, and in the ordinary diarrhœa of healthy persons, these crystals cannot be discovered, although I, and some of my friends, have made hundreds of examinations, in some cases for weeks together.

"I am not as yet accurately acquainted with the form and chemical composition of these crystals ; on both these points much still remains to be cleared up. Thus, Fig. 3, which is the form most frequently met with, appears to be merely the half of a crystal divided by a section which ran parallel to one of its sides. With respect to its chemical relations, it is remarkable that the shape differs from the primitive form of the crystals of phosphate of lime ; to which may be added, the circumstance that the crystals of typhus are soluble not only in muriatic and nitric acids, but also in sulphuric acid with facility. Can phosphate of lime be a dimorphous substance ? In this case the dimorphism would be (curiously enough) dependent here on the

formative impulse ; one form belonging to the mineral, the other to the animal processes of formation.* I wish you would procure an accurate analysis of these crystals from some of your celebrated Berlin chemists.”

On the foregoing communication Professor Müller remarks :

“ At the time I received the first letter, Typhus abdominalis was of such rare occurrence in our hospitals, that for a considerable time I could not meet with a pure case, that is to say with ulcerations of the ileum. Under these circumstances, it appeared to me the best course, to make some preliminary observations on the excrements in other diseases, and with this view I made a diligent microscopic examination of the excrements found in the bodies at the anatomical theatre. Professor Ehrenberg had long before discovered that meconium contains microscopic crystals, and I concluded from this, that similar crystals might probably be met with in the dead bodies of adults. In the excrements of adults, we have, after long searching, often found here a few scattered crystals, and these, I may observe, occurred in men who died of various diseases. Among them was a case of what has been termed nervous fever, without ulceration of the intestines, and another in which there were ulcers in the great intestine, but not in the ileum. The other cases had not the slightest connexion with typhus. The crystals, which were very few and scattered, were partly visible with the naked eye, and partly required to be examined with the microscope. We frequently observed rectangular tables, occasionally a rhomboid or rather rhombic prism ; and in one instance, long four-sided prisms with quadrilateral pyramids at each end. We never met with aggregations of crystals adhering together as represented by Professor Schoenlein. In the non-typhoid cases, we have frequently sought for crystals in vain.

“ Subsequently, I had an opportunity of examining the excrements of patients who had been treated for typhus, and on

* The reader will find some curious observations connected with this subject by Professor Graves in the 26th Number of this Journal.

one occasion, the excrements of a patient who died of typhus abdominalis with ulceration of the ileum. Although in these cases we did not meet with the crystals in a remarkably larger quantity, we do not lay much weight on the circumstance. In the dead bodies of patients who laboured under very different diseases, crystals may be found, which cannot be detected in the fresh excrements. But from the renewed observations of Professor Schœnlein, it appears, that crystals occur more frequently in the alvine evacuations of typhus, than in any other kind of excrements."

ART. VIII.—*Discovery of ciliary Motions in the Cavities of the Brain.* By PURKINJE.

"I HAVE succeeded at last in discovering the Ciliæ and their motions in the ventricles of the brain in the mammalia. Last summer, while examining the Chordæ Bergmanni, I perceived on fine sections of the epithelium, a structure resembling the ciliary membranes, and suspected that this epithelium possessed a similar function. I thereupon made numerous investigations with this object in view, but without any result, until the 23d of May, when I succeeded in discovering the ciliary motions in a state of the most beautiful activity, on the edge of the Tenia Hippocampi, in the tolerably mature fœtus of a sheep thirty hours after slaughter. They now appeared quite distinct over all the windings of the ventricles, and they could be plainly distinguished, even where they did not appear in motion. I followed the motions without difficulty through the third ventricle to the infundibulum, to the olfactory tubercles, and finally through the aqueduct of Silvius into the fourth ventricle. Here the motion ceased, but the ciliæ were still distinctly observable, although somewhat shorter than in the foregoing situations."

"The ciliæ are proportionably long, pointed, (not ragged as in the bronchial tubes,) and exhibit a whip-like vibration; we perceive also a layer of granules to which they are attached,

and which are very easily rubbed off without destroying the continuity of the epithelium. The other day I examined the brain of a sheep, in which they could also be perceived with great facility. They have been seen likewise by Dr. Valentin in the tolerably matured foetus of a sow; in another foetus of the same description, at a much earlier period, they could not be distinguished: probably the parts are too delicate for our clumsy instruments. On the whole, I have perceived from these few examinations, that the ciliæ found in the ventricles of the brain possess a finer degree of sensibility, and are much more easily destroyed than those of any other organ; I have not been able to discover them in the brain of a sparrow, or of a carp, which I examined, but cannot, on this account, draw any conclusions as to their non-existence. I could not detect any traces of them in a diseased human brain which was sent me: probably they are very transient, (as appears to be ascertained from the female ovary, and the mucous membrane of the nose), but as easily reproducible. I could not find any ciliæ in the membrane of the choroid plexus; but I have made long since a very interesting observation on this membrane. The whole plexus is covered by a peculiar matter, like the granular substance of the ganglions; and composed of the most regular granules, each of which contains a small corpuscle in its centre. This membrane appeared to me at the time as belonging to the nervous tissues, although at present I see many reasons to look upon it as epidermal.

BIBLIOGRAPHIC NOTICES.

Pharmacopœia Collegii Regalis Medicorum Londinensis.—
Londini, 1836.

Pharmacopœia of the Royal College of Physicians.—London, 1836.

WE may imagine the awe and admiration with which our fathers most probably regarded the first authorized codes of pharmaceutical lore; and as they studied the innumerable components of the Mythrificate, what visions of powdered periwigs, long cues, three-cocked hats, and gold-headed canes must have floated before their eyes. But now, when, like angels' visits, few and far between, these comets spring forward to illuminate the medical horizon, we no longer are filled with alarm and dismay; every eye becomes armed with a philosophic tube, and particulars with respect to their disks, and tails, and perihelions become subjects of the strictest scrutiny and criticism. There are many reasons why we should feel considerable interest in the publication of the New London Pharmacopœia. In this age of assimilation, no doubt, the attempt will be made, before long, to make us, Irish, swallow our medicine, after the most approved London pattern; and, it is most likely that this new edition of the London Pharmacopœia will be followed by a corresponding revisal of the Dublin. Now, it becomes an important question, by how far the Dublin College can conscientiously agree with the results of London deliberation in promoting the assimilation referred to. We, therefore, open this book with more than ordinary anxiety, to ascertain whether it will serve as the model for a "Pharmacopœia Britannica;" but, previously to entering into an examination of its merits, let us inquire what are the objects which are desirable to fulfil in a Pharmacopœia; what are the principles upon which it should be founded. In our opinion, a Pharmacopœia should consist in an enumeration of the simples which should be kept in the laboratories of compounding chemists, together with a formulary for the preparation of all those compounds which are not usually found in commerce, and which are commonly pre-

scribed by physicians. These we conceive to be the two great objects of a Pharmacopœia, which will be more or less perfect in the ratio of the completeness with which they are fulfilled. It is not as a means of advancing botanical or chemical science. It is not as an arena for the display of learning in deciding difficult questions in natural history or medical literature. It is for the practical and useful purpose of requiring the employment of pure and constant medicines, in curing the diseases of his subjects, that his Majesty William the Fourth has sanctioned the present work. Now, let us see whether the London College have justified the confidence of the king and council.

The preface tells us not to be in the least surprised at the Pharmacopœia of 1824 being now a little antiquated; that the College of Physicians had magnanimously determined to refurbish it, but found it a tough job—because “*juste perpendere*” was an act they were unaccustomed to. They were very desirous of obtaining the assistance of the Dublin and Edinburgh Colleges in framing a “*Pharmacopœia Britannica*,” but really, the distance was so considerable, that they were obliged to postpone this desirable consummation, until some further improvements are effected in the steam-carriage. They are, according to their own account, very excellent chemists; and have added notes to the greater number of chemicals, by which the student or physician will be enabled to ascertain their purity. Having mentioned that there were some chemicals which they were willing to buy from manufacturers, they proceed to state—“*licet ex his quædam nostro more præcipere maluimus, quam curæ aut incuriæ, aliorum permittere.*” Now, this we consider to be a very fair challenge; it is as much as to say—here we stand with visors up, and lance in rest, ready for all comers; and we understand that one of their knight-errants has already broken a lance with a London reviewer; and yet, we—true Irishmen—are so heedless and headstrong as to be willing

“ To try conclusions with these Janissaries,
And shew them what a pharmaceutic war is.”

In fact, we do not hesitate to assert, that the chemical processes given in this Pharmacopœia are, in the first place, useless and uncalled for; in the second, neither calculated in many instances to obtain the cheapest or purest products. To prove our first position, it can easily be understood, that the persons engaged in chemical operations are either well-informed chemists, having recourse to the best authorities, and so independent of the Pharmacopœia; or, ignorant persons without books, for whom the directions of the Pharmacopœia are quite insuffi-

cient. Let us take the preparation of nitrate of silver, as an example. You are desired to take

“An ounce and half of silver; half an ounce of nitric acid; two ounces of distilled water. Mix the nitric acid with the water, and dissolve the silver in these in a sand-bath; then increase the heat by degrees, and let the nitrate of silver be dried; liquify this in a crucible, by a gentle fire, till the water being expelled, the ebullition shall have ceased: then pour immediately into proper moulds.”

Now all this, as far as it goes, is very correct; but no ignorant person could prepare a saleable article by such directions. Our friend Mr. Ferguson, the late Chemist at Apothecaries' Hall, could shew the London College a great many omissions in their details. We have often seen the numerous precautions taken by this gentleman, and he has kindly permitted us to tell them. The pure silver of the jewellers is the kind he employs. It contains gold and some copper: by dissolving in dilute nitric acid perfectly free of chlorine, the gold is thrown down as a blackish powder. It is better always to crystallize the nitrate of silver, and if it be necessary to filter the solution let it be through pounded glass, for the slightest contact of organic matter will blacken the salt. The crystals should be placed in a glass funnel, and washed with a stream of distilled water, which will carry all the nitrate of copper to the bottom of the funnel, so that if you reject a drachm or two of the salt in the neck you will separate all the copper. The crystals must be then completely dried, and melted in a platinum crucible: if melted cautiously, there is no necessity for the addition of nitric acid or fresh crystals, as recommended by some, such addition being liable to render the product of an Isabella yellow; then let it be poured into a warm silver mould. When nitrate of silver is prepared in this manner, it is perfectly white, and does not, as the Pharmacopœia misinforms us, become blackened in the sunshine. The test given for its purity in the Pharmacopœia is perfectly fallacious; for when chloride of silver is thrown down from a concentrated solution by an excess of chloride of sodium, some of the precipitate is always re-dissolved, and the supernatant liquid will consequently become discolored by sulphuretted hydrogen. But nitrate of silver is not a solitary instance of the insufficiency of this book for enabling an inexperienced person to prepare a chemical. No one, not previously conversant with chemical manipulation, could prepare sulphuric æther by the formula here presented. Even the directions for rectifying it are utterly insufficient, no clue being given to the proper temperature. The varieties of apparatus necessary for

the different preparations, are passed over in the most dignified silence.

We now proceed to prove our second proposition, that the chemical processes are not calculated to yield either the cheapest or purest products. In some instances the process not recommended but commanded to be pursued, is not at all adapted for obtaining the intended product. Protoxide of mercury is desired to be prepared by agitating together a gallon of lime water with an ounce of calomel. We prepared some in the above manner, and when heat was applied to a portion, were edified with the spectacle of five-sixths subliming in the form of proto-chloride of mercury ; yet we are gravely told in the notes, that we may ascertain its purity by its not dissolving in muriatic acid—(how could it ?)—by its completely subliming—(no doubt ; but what are its products ?)—and by its dissolving in acetic acid. We question whether the College applied this last test.

In other instances preparations are directed, which have not the slightest use in medical practice. Acetic acid is, for the most part, used as a powerful corrosive ; the Pharmacopœial acid is of such a strength as to be fit for little or nothing. Can any person who ever practised pharmacy read the directions without a smile ? Take two pounds of acetate of soda, nine ounces of sulphuric acid, nine fluid ounces of water. The best way of making it is by decomposing acetate of lead with strong sulphuric acid, (1,845) and agitating the distilled liquid with peroxide of lead. Sometimes the process recommended is excessively wasteful. The trisnitrate of bismuth is directed to be prepared by pouring a solution of nitrate of bismuth into distilled water, and washing and drying the sediment. A great quantity of bismuth will be lost by this process, and the subnitrate obtained will be discoloured. Every manufacturer knows that the careful addition of water of ammonia to the supernatant liquid, as long as it remains acid, will obtain a much greater quantity, and that the water being acidulated with a little nitric acid, previous to the addition of the salt, will greatly improve its appearance. In Dublin we obtain it from the druggists in the form of beautiful capillary crystals.

We have instances where new preparations are substituted for old ones, with the most reckless indifference to the opinions of the profession. The old tartar of iron was a great favourite with many practitioners ; it was made, as our readers are aware, by exposing iron wire mixed with cream of tartar to the united action of water and atmospheric air ; the iron, influenced by induction from the potassium, only acquired a proto-state of oxydation : and there was thus obtained a permanent proto-salt, by many considered a desideratum in *Materia Medica*. But the

College have substituted for this preparation, a salt formed by the direct combination of peroxide of iron and bitartrate of potash, which may or may not be a preferable compound; but they might at least have afforded to the profession the privilege of a choice. The whole preparation is worthy of notice as a precious example of pharmaceutic legislation. To obtain the hydrated peroxide, you are to dissolve what is commonly called the precipitated carbonate of iron (itself a hydrated peroxide) in muriatic acid, and throw it down again by liquor potassæ. Our readers may recollect the rhyme,

“The King of France, with twenty thousand men,
Sailed up the Scheldt—and then sailed down again.”

Lastly, there are several preparations which are objectionable in every point of view; tartar emetic is made by boiling cream of tartar with crocus of antimony. Hear what Berzelius says of this method: “*L’ancienne pharmacopée suédoise prescrit de faire bouillir, pendant une heure, du crocus avec de la crème de tartre, de filtrer la dissolution et de l’évaporer jusqu’à siccité mais on obtient par ce moyen un produit dont la composition varie, et qui renferme quelquefois de la crème de tartre non saturée.*”

Iodide of potassium is made by decomposing the iodide of iron by carbonate of potash. This is Baup’s process, which is objectionable from the difficulty of avoiding an excess of potash on the one hand; or of suffering a considerable loss on the other from the precipitation of peroxide of iron, carrying down a large quantity of iodine. Mr. Ferguson has mentioned to us a process which he has been in the habit of pursuing, which is simple, cheap, and most extraordinary: by boiling carbonate of potash, iodine, and iron turnings together, with a proper quantity of water, iodide of potassium is formed; carbonic acid and oxygen escaping with a violent effervescence; and the iron turnings remain untouched. This is most strange, and evidently belongs to the operations of catalysis, lately generalized by Berzelius. We are told in the notes (a fact with which chemists were hitherto unacquainted) that iodide of potassium loses none of its weight by being subjected to the fire. Chloride of barium is directed in the *Pharmacopœia* to be prepared by decomposing carbonate of baryta with muriatic acid; every one knows how much more rare a mineral witherite is than heavy spar. Sulphate of potash the College order to be made by roasting the supersalt remaining after the preparation of nitric acid, until the excess of acid is expelled. This is a most awkward method; besides that this residual salt is much sought after in the arts. A much preferable method is the direct addition of strong sulphuric acid to a

concentrated solution of carbonate of potash. The acid will require to be added cautiously in a large vessel, on account of the violent effervescence; but the sulphate is thrown down in the form of minute, easily-powdered crystals, which, by those who are acquainted with the difficulty of pulverizing this salt, will be esteemed an advantage. Iodide of mercury is directed to be prepared by rubbing together an ounce of mercury with five drachms of iodine; a little alcohol being added during the trituration. We prepared some in this way, and, mixing it with a solution of chloride of sodium, allowed it to filter; upon the addition of nitrate of silver a copious precipitate was thrown down, which only partially dissolved in water of ammonia. The iodide of mercury evidently contained a large quantity of biniodide.

It is quite unnecessary to multiply instances. We think we have sufficiently proved both our propositions, and that it will be generally allowed that the chemical processes of the Pharmacopœia are insufficient, and incapable of producing pure or cheap articles. Is it not a gross perversion of power thus to dictate to manufacturers the method and the materials they are to use in preparing things about which they must necessarily know most. The College have placed themselves in this predicament: either to oblige compounders to use no chemicals, except those that are made "*nostro more*," and so inflict a grievous hardship; or to connive at the use of compounds prepared very differently from their commands, and so dishonour the king's warrant. Leaving the College to wriggle as well as they can from between the horns of this dilemma, we proceed to examine the remainder of their preface.

The next subject of importance referred to is the change of names, which they assert is one of considerable difficulty; but it appears they have made up their minds, for they say, "*quoniam nobis persuasum est rei cujusque nomen id demum certissimum et stabillissimum fore, quod artis suæ principes imposuerint.*" Now, like Dr. Franklin, when we get a good principle, we like to go through with it,—"*the name is the most certain and permanent which is imposed by the principles of the art itself.*" Very well. So we have "*cupri ammonio-sulphas*:" "*ferri ammonio-chloridum*:" "*ferri potassio-tartras*:" "*ferri sesquioxylum*:" "*hydrargyri ammonio-chloridum*." But why call yellow prussiate of potash "*potassii ferro cyanidum*?" It should be, according to their own rule, "*ferri potassio cyanidum*." And again do the principles of the science impose names inconsistent with chemical composition. Is there any reason to believe the "*ferri ammonio chloridum*" to be a chemical compound? One atom of acid to fifty of base.

would be a new fact in chemical combination. An oxide of iron containing 12 or 15 per cent. of proto-carbonate, has not been hitherto considered a very pure sample of sesquioxide. Sal alembroth cannot certainly be the compound intended by the "hydrargyri ammonio-chloridum," and yet we know of no other deserving of the name. Mr. Hennell considered white precipitate to be a compound of peroxide of mercury and sal ammoniac. And our friend Dr. Kane supposes it to be a combination of bichloride of mercury with amiduret of mercury : but neither view will license the pharmacopœial title. Again, Prussian blue is not a percyanide of iron, but a mixture of both cyanides. But really it is too absurd, in the present state of chemical nomenclature, to put the profession to the trouble of altering the names of almost every medicine. Scarcely two writers on chemistry are agreed with respect to nomenclature ; what one calls "sesquioxide of iron," another calls "ferric oxide :" what one names "hydrargyri ammonio-chloridum," another styles "chloro-hydrargyrate of ammonium," and others "the double chloride of mercury and ammonium." Very little doubt remains on the minds of many chemists that the compounds hitherto called "hydracids" are actually bases like the haloid salts of iron or zinc. The very term "salt," as it is now used, is most objectionable, conveying an idea in chemistry utterly at variance with its ordinary acceptation. The present system of chemical nomenclature is most unlikely to be permanent, different principles being acted on in naming perfectly analogous groups of amphide salts. Is the science of medicine to be perpetually agitated by every wind of nomenclature ? confusion and danger to human life being the necessary consequence of every sudden change.

Leaving the preface, we now turn to the body of the work itself. And here we are startled by the alteration of the liquid measure from the wine to the imperial gallon, and shocked by the excessively careless manner in which that alteration is effected ; no comparison whatever is instituted between the new and the old measures : no notice is taken of the fact, that the new ounce is about eighteen grains lighter than the old ; or that the new pint is 1460,5 grains heavier than the old. The number of grains of distilled water contained in the imperial gallon is not even hinted at ; and there is not the slightest allusion to the change of measures throughout the body of the work. Now when it is recollected the class of persons for whose use the Pharmacopœia is principally intended, and the dreadful consequences liable to ensue from mistake, this negligence must be considered as most culpable. How can the members of the College expect apothecaries' apprentices and druggists' assis-

tants to be less liable to error than themselves. When we find a council of sage medical gentlemen, “with spectacles on nose, and brows of monstrous size,” writing “decem” instead of *duas* (*vide* Errata); “uncias duas,” instead of *drachmas duas* (*vide* Tinctura Ammoniae Composita); “tribus,” instead of *duabus*, (*vide* Ammoniae Liquor F.); and prescribing the materials for preparing Prussic acid of the strength two grains in the “ounce,” instead of “100 grains,” surely we need not be astonished if a stupid boy should make arsenical solution with eighty grains to the wine pint, in place of the imperial.

In turning over the pages of the *Materia Medica*, we confess ourselves completely dazzled by the display of scientific learning exhibited. Galls are “*gemmae morbidæ*,” it is the cormus of the colchicum; the “*rhizoma*” of the ginger; the “*fructus*” of umbelliferous plants, which are ordered to be employed. Unfortunately, botanists are not agreed about the term “*cormus*.” Wildenow and Decandolle define it to be “*partie des vegetaux cryptogames qui se trouve hors de terre, la fructification exceptée*.” We are not inclined to quarrel about trifles, but surely it is right to be consistent: if we speak of “caraway fruits,” and not carraway seeds, we should not talk about the “simple flowers” of the chamomile, the bark of the fruits of the orange, the pulp of the legumes of the “cassia,” or more correctly, the “*cathartocarpus fistula*,” whose fruit is not a legume but a lomentum. The “dried pulp of colocynth:” “pulp” is applied to cellular tissue contained within the cells of the carpels; the part of the colocynth used is the sarcocarp or flesh. The “stigmas of saffron:”—stigma is the denuded extremity of the style; it is the styles are employed. Here again we have some desirable information afforded us to us. We were not before aware that musk was “*humor in folliculi præputii secretus*,” and we were much edified by the Hispanio-Latin coinage “*Vinum Xericum*.” But we are sick of this petit maitre kind of science. “In our souls we loathe all affectation;” and when men are called on to perform a grave and important duty, the exhibition of pseudo-scientific frippery is most uncalled for. Forsooth red bark is the produce of the “*Cinchona oblongifolia*,” aloes of the “*aloe spicata*,” rhubarb of the *rheum palmatum*;” copaiba of the “*copaifera langsdorfii*.” “Si j’ouvre l’histoire de la matière médicale,” writes a very great authority, “j’observe qu’un grand nombre de medicaments, meme les plus actifs, qui, dans l’enfance de la science avaient été regardés comme les produits d’une seule plante, se sont trouvés, lorsque leur histoire a été mieux suivie, appartenir a plusieurs espèces, voisines-ainsi le quinquina est tiré de toutes les espèces de vrais Cinchona, la rhubarbe de presque tous les

Rheum, l'opium de plusieurs Pavots, le semen-contra de plusieurs Absynthes, la terebinthine de la plupart des Pins, ainsi l'histoire mieux connue de la gomme adragant nous montre qu'on la tire de plusieurs Astragales épineux : il en est de meme de la gomme arabique qui de-coule de plusieurs Acacias." In fact what had the framers of the Pharmacopœia to do with these disputed points ? That which they should have done, they have left undone, *i. e.* to furnish a complete list of drugs, with a description of the varieties which are proper to be kept in apothecaries' shops ; thus they mention aloes, sarsaparilla, opium, &c. without affording any clue to the kind which ought to be preferred, although it is notorious that the varieties met with in commerce differ in the most remarkable degree. We have at present two specimens of sarsaparilla root before us, the one with a light brownish cuticle, rather thick, with a considerable layer of amylaceous substance between the epidermis and the woody centre. The other, with a cuticle of a much darker brown, a very thin, reddish layer placed between it and the central wood. The first produces an infusion similar to turbid beer, the latter, when infused, gives the water the clear, deep red of best brown stout. Now which of them are we to employ ? The College gives us no directions. The best Turkey opium usually yields 20lbs. of extract from 28lbs. used. We have known dry Egyptian opium to give more than its own weight ; but it is quite a matter of indifference to the College of Physicians. We find scammony, sometimes, as light and porous as a pumice stone ; at others, dense, heavy, and dark coloured. The one is as good as the other in the estimation of the Pharmacopœia. Here are two varieties of senna leaf ; the one requires much more to be employed in making an equally dark-coloured decoction than the other ; whilst its smell is most nauseous and unpleasant, that of the other being aromatic and agreeable. We are left quite in the dark which of them to prefer. Now, when it is recollected that this is the very purpose for which a Pharmacopœia is intended, this negligence is most reprehensible. We hope to see in future Pharmacopœias a complete description of the drugs ordered ; such as will enable the best to be easily recognized, together with the means, as far as known, of testing their purity, and of removing adulterations. These are the legitimate objects of a Pharmacopœia.

With respect to the pharmaceutical preparations, this book is miserably deficient. One of the few sensible alterations which we have observed is, directing the aromatic waters to be prepared by rubbing the oil together with carbonate of magnesia, and the proper quantity of water, and then filtering. But, even here, we have the usual exhibition of negligence. Do

they mean, that as much oil of rose should be employed, as oil of cinnamon. Hemlock poultice is desired to be prepared by mixing together two ounces of extract of hemlock, a pint of water, and a sufficient quantity of linseed meal. What an expensive and awkward process! Yeast poultice is to be made with a pound of flour and half a pint of barm. We refer them to Mr. Donovan's paper, in the *Annals of Pharmacy*, for the year 1830, to shew them the absurdity of this preparation—"Ceratum sabinae" is useless, according to their method of preparing it. How much of the essential oil do they imagine will be extracted by immersing savine leaves in melted lard, and then expressing? The Dublin College go to the other extreme in a similar preparation, directing you to fry the leaves in lard, and, consequently, driving off all the essential oil. The best way of preparing it is, to rub a determinate quantity of essential oil with simple ointment. "Ceratum saponis" still continues with all its imperfections on its head. By boiling soap together with a solution of acetate of lead, some very excellent lytharge plaster is formed, which floats in a solution of acetate of soda; by boiling down the liquid to the consistence of a paste previous to the addition of the soap, this might be avoided. We refer them to Mr. Ferguson's paper, in the first volume of the *Dublin Journal*. There is an air of mock dignity about the directions of all pharmacopœias, which affords us much amusement, but which is connected with this inconvenience, that great difficulty is felt in getting down from the stilts to afford the necessary minute directions: thus, you are desired to powder saffron, tragacanth, myrrh, hippo, scammony, colocynth, &c. although left without any direction in what manner to proceed; and when advice is vouchsafed with respect to the method of compounding, it is, in many instances, impracticable to be obeyed: thus, in the confection of rue, you are desired to powder gum sagapenum, a process of some difficulty, it must be confessed. Why have they so wantonly altered the proportions of tobacco enema from one drachm in sixteen ounces to a drachm in twenty; and, in infusion of digitalis, from a drachm in eight ounces, to a drachm in twenty ounces. No directions are given about the temperature at which turpentine enema should be made, so the compounder is perfectly at liberty to coagulate all the albumen of the egg, if he wishes.—The old process for inspissated juices is preserved, without any regard to the late discoveries or improvements. Compound infusion of senna still retains its place, although it must be well known to the members of the College, that it is always prepared by decoction. How ridiculous also, to direct the compound infusion of roses to be infused during six hours. These

are preparations usually wanted for immediate use, and are not injured by a short decoction; on the contrary, much more of the active principle of senna is extracted by boiling, than by macerating. We have been amused by the manner throughout the whole work, in which the specific name of the plant is substituted for the name of the drug: thus in "*confectio piperis nigri*:"

℞ Piperis Nigri,
Inulæ, singulorum Libram;
Fœniculi Libras tres;
Mellis,
Sacchari, singulorum Libras duas.

Can this be considered as a substitute for the old system of transubstantiation in the defunct *Pharmacopœia*, where a whole section was headed "*Vina*," although not containing a drop of wine in any of the preparations it contained. In the teeth of the Temperance Societies, the College have, however, restored real wine to the present edition. And to shew, moreover, the determined "*spirit*" in which they are resolved to resist newfangled innovations, they have introduced a formula for the preparation of "*Mistura Spiritûs Vini Gallici*," Anglice—egg-flip. We assure you, reader, it is no joke; here it is, page 143. —Take brandy and cinnamon-water, of each four fluid ounces, the yolks of two eggs; half an ounce of purified sugar; two minims of oil of cinnamon.—Mix. We have it in contemplation to make some experiments on this preparation during our leisure hours.

The directions for making simple syrup are ten pounds of sugar to three pints of water; this is by far too much. Lini-ment of verdigrease is still retained in its old form, although it is notorious, that when made some time it does not contain one particle of copper; it should always be prepared extemporaneously by rubbing up the distilled verdigrease of commerce with honey. The change of names is sometimes most absurd in this department: think of calling mucilage of gum "*mistura acaciæ*;" this same *mistura acaciæ* is used for making several pill masses—the very worst thing they could have chosen. But we leave the catalogue of errors, first recording our hope that the "*Pharmacopœia Collegii Regalis Medicorum Londinensis*" may never become the "*Pharmacopœia Britannica*."

JOHN ALDRIDGE.

A practical Treatise on the Management and Diseases of Children. By RICHARD T. EVANSON, M. D., Professor of Medicine, and HENRY MAUNSELL, M. D., Professor of Midwifery in the Royal College of Surgeons in Ireland. Dublin, 1836.

THE want of a compendious treatise on the diseases of childhood, suited to the present advanced state of medical science, has long been admitted both by students and practitioners. It would be useless, perhaps invidious, to point out the defects, whether of omission or commission, in the various works on the subject in our language; their deficiencies have been long acknowledged by the profession, and, however useful some of them undoubtedly were at the period of their publication, they are now, to say the least, antiquated. Our continental brethren, more especially the Germans, have been more alive to the importance of this branch of medical literature; and, accordingly, we are indebted to them for several excellent works on the diseases of children; but it is only justice to state at the same time, that however slow British physicians have been to embody their experience in systems of child's medicine, we are, nevertheless, indebted to British practitioners for monographs on some of the most important of the diseases of children, at least equal, if not superior, to those produced by the physicians of any other country; still, we repeat, that a formal treatise embracing the entire subject within moderate limits was wanting; and this want the work before us has abundantly supplied.

The plan which the learned authors have adopted is very comprehensive, and admirably adapted to the subject they treat of. The first chapter is devoted to the "Peculiarities of the infant Structure and Constitution;" and contains, perhaps, every thing of practical importance on the subject. It commences by describing the general appearance and structure of the newborn infant, considers in succession the digestive organs, the organs of respiration, those of circulation, the cerebro-spinal system, the locomotive apparatus, and terminates with an interesting account of the growth of the organs of animal life, of the changes which occur in the organic functions, and of the successive development of the moral and intellectual powers.

The second chapter treats of the "Management and Physical Education of Children;" and in it we find, clearly and minutely detailed, the appropriate treatment of the child, immediately after birth, together with its management, and the

influence of physical agents on it, at every subsequent period. The chapter terminates with some truly admirable observations on the mental and moral education of children, to which we would earnestly entreat the attention of all who are concerned in the management of children.

The third chapter, on the "Peculiarities of Disease in Infancy and Childhood," treats of a subject of paramount importance in infantile disease, and is executed in a very superior manner, under the several heads of Etiology, Diagnosis, and Prognosis. The section on diagnosis in particular, will be found exceedingly valuable to the juniors of our profession, as containing a mass of precise information, on a subject often extremely embarrassing to the young practitioner.

In the fourth chapter, the important subject of "Infantile Therapeutics" is discussed at considerable length, and we feel bound to say, with great ability. We regret that our limited space precludes the possibility of giving an analysis of the contents of this chapter, the execution of which is fully commensurate to the great importance of the subject it treats of.

The great variety of matter in the fifth chapter, also precludes the possibility of any thing like a satisfactory analysis of its contents; it is devoted to the "Accidents and Diseases occurring at Birth, or shortly afterwards." Suffice it to say, that we are furnished with precise and judicious directions for our guidance in every occurrence requiring medical interference within the province it embraces.

In the sixth chapter, on "Dentition," the development of the teeth, and the various morbid phenomena so often witnessed during dentition, are fully described, with satisfactory directions for their management.

The "Diseases of the Digestive Organs," form the subject of the seventh chapter. Some general considerations on the pathology of the mucous membrane of the alimentary canal are premised, particularly insisting on the tendency of certain diseased conditions of the mucous membrane of the mouth to *spread*, as exemplified in the dangerous results sometimes witnessed from the extension of an apparently mild inflammation, attended with exudation, or slight ulceration, to the air passages or digestive tube.

The numerous affections of the mouth and thorax, from the simplest to the most formidable affections of these parts are then described, and the appropriate treatment for each clearly pointed out. The long catalogue of affections of the stomach and bowels, including disease of the mesenteric glands, intestinal worms, and remittent fever are subsequently treated of in

an extremely satisfactory manner: the account of remittent fever is especially worthy of perusal.

In the eighth chapter which is devoted to the "Diseases of the respiratory Organs," such of them as are common to both the child and adult, are succinctly dealt with, reference being merely had to the peculiarities of their character and treatment in the young subject. A complete view is, however, given of those affections of the respiratory organs which are either rare or absent in the more advanced periods of life. Of this latter class of affections, croup, foreign bodies in the larynx, spasm of the glottis, and pertussis, are the most prominent, which affections are severally graphically delineated, and a rational and efficient treatment of each inculcated. With respect to the pathology of the disease known as spasm of the glottis, a matter which has recently been much discussed, we perceive that our author adopts the views of Dr. Marsh,—“who considers it to be primarily an affection of the muscles of the glottis, and that it is only when the disease increases in severity, and when general convulsions arise, that the brain or its membranes become the seat of disease;”—and this he does on grounds which have long induced ourselves to consider this explanation as decidedly the most satisfactory as yet adduced with respect to the nature of this affection. In connexion with this disease, our author makes the following remarks on certain cases of sudden death which appear to us worthy of being transcribed:—

“We have stated that death sometimes takes place in children with unaccountable suddenness, and that such cases are usually referred to *spasm of the glottis*. For anything we know to the contrary, at present, such term may be rightly applied; but we wish to point out that the disease which we have just been describing under the title of *spasm of the glottis*, has distinct characters and symptoms which mark it as different from the class of cases to which we are now alluding. We shall briefly state the particulars of the last instance of the kind which has fallen within our notice, as the simplest way of illustrating our views. A child of eight or nine months old was apparently recovering well from hooping cough, its bowels were not materially deranged, it sucked well, and the cough was becoming less frequent and severe. But alarm was two or three times excited among its attendants by the sudden occurrence of unusual agitation in its breathing, which, however, was so transient, that no very clear account of its nature could be obtained. On the day of its death it appeared lively, and better than usual; but towards evening, while lying on its mother's lap, without cough, convulsion, or struggle of any kind, it suddenly expired. A careful examination was made of all the cavities, about eighteen hours after death, but without discovering any morbid appearance whatsoever. There was no *crowing inspiration*,

purple complexion, or other mark of obstructed respiration or suffocation, which are so many pathognomic signs of the disease we first described.

“ We know of many occurrences similar to that just narrated. Professor Montgomery has lately given an account of some which fell under his notice.* He relates two, in which there was some enlargement of the thymus gland, and refers the fatal result to the pressure of that organ upon the trachea and great vessels and nerves. That this is not the constant cause of the event, (we can scarcely call it a disease,) we are perfectly certain, for, in the foregoing case the thymus gland was in a normal condition. It is probable, however, that there may be more than one occasional cause, and every observation on the subject is interesting.

“ As to the treatment we have little to offer. The child is generally dead before we hear of its being ill ; but if our attention be directed to any unaccountable agitation in the breathing of an infant, we would be disposed to treat it on the plan already recommended in this section for improving the general health. If there be any appearance of fulness or enlargement in the region of the thymus gland, and that the condition of the child warrants us in supposing this to be of an inflammatory or congestive nature, a leech may be applied over the sternum, and subsequently some slightly irritating liniment rubbed upon the part. If we have reason to suppose the enlargement to be scrofulous, the internal use of iodine will probably be of service. If we happened to be with the child at the moment of seizure, the performance of tracheotomy would, undoubtedly, be warrantable.”

The Exanthemata form the ninth division of the work. The observations on the pathology of this interesting class of disease, are highly worthy of attention, as is indeed the entire chapter. The section on Scarlatina, in particular, is a most felicitous example of the best style of medical writing, almost, perhaps, every thing of practical importance on the subject being compressed into a space, which at first sight seems inadequate to its destined purpose, but has been made sufficient by not containing a superfluous word. The tenth chapter, on Vaccination, which may be considered as subsidiary to that on the Exanthemata, gives a lucid and complete view of the present state of our knowledge on one of the most important subjects in the entire range of medical science.

The succeeding chapter treats of Scrofula, Syphilis, Purpura, and Pemphigus Gangrenosus, which are described in a manner at least equal to the masterly execution of the preceding portions of the treatise.

The twelfth and last chapter of the work contains the history of the diseases of the cerebral system, which are considered

* Vide vol. ix, of this Journal.

under the heads of Functional Diseases and Inflammatory Affections. We regret much that the limits within which we are unavoidably confined prevent us from extracting largely from this portion of the work ; the entire section on Hydrocephalus would be an ornament to our pages of more than ordinary value ; as it is, however, we better consult the interest of our readers by referring them to the book itself.

It may be collected from the foregoing observations, that we have derived unmingled gratification from the perusal of the work under consideration ; it is indeed highly creditable to its authors. Were we inclined to be captious, we might regret that it has not been executed on a more extended scale, and that its learned authors have not communicated to the public at greater length their valuable stores of practical information. We, however, make this observation, not as in the slightest degree implying censure, but merely as a suggestion, which we trust will be acted on when the next edition of the book appears, an event which, if its success is at all proportional to its merit, must be very close at hand indeed.

* * *

A Treatise on the Diseases of the Eye and its Appendages.

By RICHARD MIDDLEMORE, M. R. C. S., Surgeon to the Birmingham Eye Infirmary, &c. In two vols.

THIS highly respectable work, in two large volumes, is, if we are not false prophets, destined to assume a very high rank amongst the literary labours of the age, and to find a well merited place in the library of every scientific surgeon ; embracing a very wide field of research, both on the Continent and at home, so as to form a most valuable compilation, and at the same time presenting the results of an extensive personal practice, minutely detailing symptoms, and drawing distinctions between the various diseases of that beautifully organized portion of the human structure, the eye, and detailing the treatment which has been found most beneficial. The author states that he has undertaken and accomplished this work, influenced by a feeling (highly honourable to himself) that public charities should be rendered subservient to the purposes of medical instruction, and in a manly, straightforward manner declares that he would not consent to retain his present appointment, if considered incapable of assisting, or unwilling to aid the student either by the communication of clinical remarks, or by the delivery of a distinct and regular course of lectures. Mr. M., in proof of the very

great interest which the anatomy of the eye has excited, refers to the number of names connected with various parts of the organ of vision, viz. :—

“Liquor Morgagni, Canalis Petitiona, Foramen Soemmeringii, Zonula Zinnii, Tunica Ruychiana, Tunica Jacobiana; in short, there exist many other names and terms, derived from similar circumstances, before and since the time of Jacob.”

Mr. M. indulges in a well-merited tirade against those who assume the title of oculists—mere oculists, and in that we fully agree with him; and indeed we have seen some of those so styled persons ignorantly torturing, and inflicting injury locally in many cases where tonic and constitutional treatment, judiciously practised, would have produced the most beneficial effects.

“If,” says our author, “by the term oculist is meant a person competent to treat the various maladies of the human eye, without any, or only a very slight acquaintance with general anatomy, pathology, and therapeutics, we may confidently assert that there is no such person in existence; for he only can be considered adequate to the treatment of disease, in whatever part it may be situated, who is conversant with the natural structure of parts, with the laws which regulate the healthy functions, and with the derangements and alterations produced by the encroachments of disease, with the sympathies, the influences, and connexions subsisting between every part of the animal machine.”

We find Mr. Lawrence expressing nearly the same sentiment:—“Exclusive attention to a small corner of the animal structure causes a confinement of mental vision analogous to the nearsightedness which mechanics contract by constantly poring over the minute objects of their attention. All the habits of the oculist lead to a separation and insulation of the organ. The part is detached from the system, treated with washes, drops, and ointments, and this inefficient trifling impedes the progress of ophthalmic surgery.”

Mr. M. argues, that the pure and exclusive oculists are not those, who have conferred the greatest benefits on science by their writings; but, on the contrary, those who have made ophthalmology only a part, and a necessary part, of their professional practice: amongst those he quotes the names of Fane, Wardrop, Jacob, Dupuytren, Crampton, Guthrie, Vetch, Travers, Lawrence, Tyrrell, Cooper, and Makenzie.

After passing in review some of the ancient, and many of the modern writers on ocular medicine, the following encouraging remarks occur:—

“ Do not imagine, that because ophthalmic science has recently made rapid avances, that it is by any means perfect, and that it presents a barren field for the exercise of your ingenuity, and the expenditure of your labour. Look at the improvements which have been recently made in the treatment of ophthalmic diseases; as, for instance, the use of strychnia in several forms of amaurosis and ptosis; the application of the strong nitrate of silver ointment in many acute and chronic diseases of the conjunctiva, and more particularly in such as are attended with a much increased discharge from that membrane; the employment of turpentine in iritis and inflammation of the deep-seated textures of the eye; the administration of the sulphate of quina and iodine in various strumous inflammatory diseases of the eye, many of which were previously most improperly treated with mercury, given to the production of pyalism; the local application of the sulphate of cadmium in nebula, and albugo of the cornea, &c.”

Mr. M. has followed the most natural and scientific arrangement in his nosology, by classifying the diseases of the eye, according to the textures which enter into its composition, just as the morbid affections of other parts and organs are investigated according to the known laws of tissues, which removes at once a great deal of the apparent difficulty of the subject, and renders the task comparatively easy of accomplishment. Reasoning in this manner, Mr. M. makes use of the terms catarrhal ophthalmia, rheumatic ophthalmia, under no apprehension of being misunderstood; applying the former to an inflammation of the mucous membrane, and the latter to the fibrous membranes.

“ Some of the textures of the eye intimately sympathize with the state and diseases of the constitution, viz. the power of the retina is not unfrequently diminished, and sometimes even totally destroyed, during lactation; and great impairment of vision has been known to take place, as a consequence of amenorrhœa, &c.”

Sympathy, according to Mr. M., between the two eyes, should rather be termed a sympathy of similar textures in either eye; for instance, if the cornea of one eye be inflamed, the cornea of the other is much more likely to become so, than the iris or sclerotic, and in the same manner, of the other tissues. The structure of the cornea, one which, from its peculiarities, has been denominated *sui generis*, seems to exercise some influence on the mucous and serous membranes, which bound it respectively anteriorly and posteriorly, so as to cause “ a deviation from the perfect purity of type exhibited by par-

ticular tissues ;”—this seems to form the only exception to the general plan adopted by our author.

After the general preliminary remarks, the author proceeds to discuss, separately, the diseases of the various structures, commencing with the conjunctiva ; the anatomical description of each membrane precedes the pathology and treatment.

The distinguishing marks between diseases liable to be mistaken, are, in general, clearly and accurately laid down ; for example :—

“ The only disease of any other parts of the eye with which acute inflammation of the conjunctiva is liable to be confounded, is, scleritis. You would distinguish the disease under consideration from inflammation of the sclerotica *by the colour* of the vessels which you know are bright scarlet, whilst those of the sclerotic are of a purplish appearance ; *from their situation*, they are placed *upon* and *within* the conjunctiva, and may be moved with it *upon* the eye-ball ; those of the sclerotic are deeper seated ; the conjunctiva may be moved upon them, whilst they only follow the movements of the eyeball ; *from their arrangement* they are first perceived at the periphery of the eyeball, and are most abundant there ; those of the sclerotica are first perceived near the margin of the cornea, and finally the vessels of the inflamed conjunctiva are less direct, more tortuous, than are those of the inflamed sclerotica.”

In every part of this work the greatest stress is laid “ on strictly inquiring into the constitutional condition and habit of your patient,” and the strongest cautions are given, not to fall into the error of exclusive local treatment, where the removal of the constitutional cause will be striking at the very root of the affection.

In acute inflammation, in a strong person, bleeding is strongly recommended from the arm, or by cupping, and afterwards to be followed up by leeches applied to the inferior palpebræ, then blistering behind the ear, or at the back of the neck, the eyes to be bathed with warm water, and several times in the day with goulard water, or when much pain is present, a strong aqueous solution of opium or decoction of poppies, or fomentation of hops, or a solution of extract of hyoscyamus.

“ At the same time you may prescribe a little blue pill and colocynth, with a small quantity of tartarized antimony, or if you wish to prostrate the powers of the system very much, you may administer digitalis or colchicum, or you may select and adapt some active purgative, such as scammony, elaterium, gamboge, &c., which you may consider as best suited to the habit of your patient, and to the particular circumstances of the case.”

The disease may be sufficiently diminished in a few days to admit of the use of a little zinc lotion, or a collyrium of vin. opii \mathfrak{z} i. aquæ \mathfrak{z} i. \mathfrak{m} . in lieu of the acetate of lead lotion; and then the drops of nitrate of silver (two grains to the ounce of water) may be used, or the undiluted vinum opii.

In the treatment of chemosis, after the application of those means which lessen inflammation, leeching above the eyebrow may be employed, alum and zinc lotions, free scarification of the swollen parts, (for which purpose the knife used by Mr. Wardrop is preferred,) and the nitrate of silver drops.

The general means of subduing acute conjunctivitis are as follows:

1st. To lessen the general fulness of the system, and the power of the circulation.

2nd. To diminish the vascular plenitude of the inflamed part.

3rd. To rectify any disordered state of the health, and particularly any derangement of the alimentary canal, that may exist.

4th. To employ counter-irritation in the neighbourhood of the disease.

5th. To remove heat by the local employment of collyria, or relieve pain by means of anodyne or soothing applications, or promote vascular contraction by the use of suitable stimulants or appropriate astringents.

6th. To protect the eye from the influence of vivid light, and especially not to allow active vision by artificial light.

Amongst the curative means employed is, that of shading the eyes by means either of green or blue spectacles, or by a piece of linen hung before them, which possesses the additional advantage of acting as a medium, for the application of cooling washes, as well as modifying the light.

In catarrhal ophthalmia, Mr. M. recommends, in order to prevent the agglutination of the eyelids, and to correct the altered state of the meibomian glands, an ointment carefully made by rubbing \mathfrak{z} ss. of the liq. plumbi acetatis with \mathfrak{z} i. of spermaceti ointment, to be applied between the lids two or three times a day, first bathing the parts to remove the acrimonious secretion; and after its use for two or three days, he recommends the use of one of the following ointments.

1st, \mathfrak{R} Ung. Hyd. Nit. \mathfrak{z} i.
Ung. Cætaei \mathfrak{z} ii. \mathfrak{m} .

2nd, \mathfrak{R} Ung. Hyd. Nit. Oxydi gr. ii.
Ung. Cætaei \mathfrak{z} i.

Misce accuratissime.

A small quantity of either of these ointments may be dissolv-

ed, and carefully smeared along the precise margin of the eyelids at bed time.

The chapter devoted to Purulent Ophthalmia, amongst other highly interesting matters, contains the opinions formed by the author with regard to its contagiousness. 1st. Contagion alone will not generally produce this form of purulent ophthalmia, but requires to be aided in its operation by many circumstances, of which we may enumerate constitutional susceptibility or aptitude, want of cleanliness, disordered health, exposure to a brilliant sun, or to the damp night air, or to dust, or to peculiar conditions of the atmosphere, the dense moist atmosphere being most prejudicial; all or any of these circumstances will generally insure the operation of contagion.

2ndly, It may arise without the aid of contagion, as in instances of relapse, and those in which one eye becomes affected as soon as the other has nearly recovered; also the instances given of its arising in ships on long voyages, which have not had communication with other ships, or touched at any land, &c.

In the treatment, venesection to a very large amount in the commencement is strongly recommended, pushed sometimes so far as fifty or sixty ounces, but in all cases admitting its employment, *ad deliquium animi*, antiphlogistic treatment in other respects is also recommended.

To the use of stimulants in the earlier stages, Mr. M. is strenuously averse, and to their employment he attributes the many cases of tinea, granular conjunctiva, relapses, and many of the chronic inflammatory affections.

On the ophthalmia purulenta neonatorum, we do not find much light thrown; amongst other causes, Mr. M. quotes the opinion of Benedict, that the sudden exposure of the infant at birth to cold and light, and particularly “*ad candelæ lucem, ut ex ejus facie utrius parentum suorum similitudinem præ se ferat intelligant*,” and the opinion of Dupuytren, that it is caused more often by gonorrhœal and leucorrhœal discharges, than by any other of the morbid secretions of the vagina. The results of the author’s experience are distinctly stated: 1st, that common inflammation of the conjunctiva in newly born infants may occur from the application of the ordinary causes of that malady in adults. 2ndly, That purulent ophthalmia may, under the circumstances already pointed out, proceed from the contact of leucorrhœal discharge applied during the period of parturition; and, 3rdly, that the worst cases are occasioned by gonorrhœal, not leucorrhœal discharge. The description of collapse of the eyeball after suppuration is graphic:—

“The contents of the globe are discharged through an opening

in the cornea or sclerotic, but more generally through the former; and after the shrinking and contraction of the remaining portion of the tunics, there will remain a small round button-like knob, to which the muscles of the eye ball are attached. This button-like tubercle has generally a depression in its centre, into which an artificial eye may, if required, be fitted."

The distinctive characters between gonorrhœal ophthalmia, and simple acute purulent ophthalmia are well drawn. Gonorrhœal ophthalmia.—Course, very rapid; symptoms extremely severe; termination very frequently destructive to vision. It rarely attacks both eyes at the same time; commences in the whole mucous membrane, quickly producing chemosis, with profuse purulent secretion, and great tumefaction of the palpebræ, and has some relation to, or connexion with, gonorrhœa.

Simple acute purulent ophthalmia generally commences in the palpebral portion of the conjunctiva; symptoms less severe than those of gonorrhœal ophthalmia; course less rapid; termination less frequently destructive to vision. It generally attacks both eyes at the same time; has no connexion with gonorrhœa; the swelling of the lids, the chemosis, and amount of discharge, are less than in the gonorrhœal inflammation of the conjunctiva.

Speaking of slough of the cornea, Mr. M. states his opinion, that it always commences in its external layers, and thinks, that it is, in general, caused by extensive chemosis exercising pressure on the nutrient vessels of a tissue which is not highly organized.

The chapters on Purulent and Gonorrhœal Ophthalmia are full of information; opinions are discussed, and withal, a steady, plain statement is advised, suitable to the diverse nature of the various cases. Some authors deem true gonorrhœal ophthalmia to be a very rare disease. Mr. Pearson, in twenty-five years' extensive practice, had never seen a case.

Mr. M. as general practice recommends, that as soon as the acute symptoms are decidedly diminished by bleeding, and the other remedies already mentioned, the discharge lessened, and the tense, florid condition of the conjunctiva superseded by a palish, flabby state of that membrane, to use a strong solution of nitrate of silver, or an ointment made by the following formula:

℞ Argenti Nitratis, gr. ii.
Liq. Plumbi subacetatis, gtts. viij.
Ung. Cætaei, ʒi. Misce.

A little of this to be applied to the upper lid, raised by means of a probe; the eye is then to be kept closed for half an hour,

and then bathed with a little warm water. In scrofulous ophthalmia the author endeavours to account for the profuse and scalding lachrymation by the hypertrophied state of the lachrymal gland. After extensive trial he dissents from the opinions entertained by M. Lugol on the virtues of iodine, and "thinks its use might, in most scrofulous cases, be superseded by sulphate of quina."

Counter-irritation is extensively discussed, and great objections made to the application of blisters in the immediate neighbourhood of the disease.

Where blepharospasmus and photophobia are very severe, Professor Koreff's plan has been followed with great advantage, viz. applying a solution of borax (ʒij. to ʒi. aquæ distill.) by means of compresses of fine linen.

Under the head Variolous Ophthalmia, we find this judicious remark :—

"Let me advise you not to permit the meibomian secretion to collect, (as is too frequently done,) for, if you do, in the event of the patient's recovery, he will be likely to suffer from permanent loss of many of the ciliæ, or from a state of tinea, which may be very tedious in its duration, besides the irritation the eye will necessarily sustain from the lodgment of the discharge on its surface."

Simple bathing with warm milk and water, will be sufficient to remedy this inconvenience.

Amongst the causes of chronic ophthalmia, after the mention of entropium, ectropeon, trichiasis, or a single hair which sometimes proceeds from the internal surface of the palpebræ, and is capable, from its minuteness, of being overlooked. Gas is mentioned as one of the most frequent causes amongst the working classes, particularly where it is used unguarded by a glass to steady the light, and also by the heat and morbid state of the atmosphere, generated by it in small rooms. Mr. M. is in the habit of shaving away the granulations with a scalpel, and applying a solution of lunar caustic to prevent reproduction.

The author draws some nice distinctions between "those opacities of the cornea which are likely to be removed by the unaided efforts of nature, and those which invariably require for their removal the assistance of art;" also the circumstance of inflammation being mistaken for mere opacity, in which case the application of stimulants is adding fuel to the fire. Simple nebula of the cornea he removes by the application of drops composed either of oxymuriate of merc. 2 gr. to ʒi. water, or nit. arg. gr. iij. ad. ʒ aquæ, or by the daily application of the ung. hyd. nit. weakened by the addition of two parts of spermaceti. In those denser opacities which are capable of removal by the aid

of local means, Mr. M. recommends not continuing a local stimulus of one kind, for more than a week, but to exchange the the oxymur. drops for the nit. arg. and that again for the vinum opii.

The sulphate of cadmium is lauded by Graef and others of of the German school. Mr. M. scouts the idea of excision of the leucomatous portion of the cornea, as scarcely rational.

The objections made by Dr. Jacob to the application of nitrate of silver to ulcers of the cornea are not considered of sufficient weight by Mr. M. to counterbalance the advantages to be derived from its employment.

The chapter on Iritis is a monograph on the subject, the touching merely upon which would be an act of injustice. Ample praise is given to our talented countryman Carmichael, for the introduction of the employment of turpentine in those cases in which mercury cannot, or ought not to be used. There is much interesting matter in the article on capsular cataract : amongst other opinions, the author advances one, that sometimes, in bad cases, lymph being effused from the inflamed capsule, may so press on the lens as to cause absorption of a great portion of it.

Actual inflammation of the lens is denied :—

“ I am quite unacquainted with any disease of the eye which can with propriety be termed lentitis.” Again, “ I do not think we are in possession of any sufficient evidence to prove that the lens itself ever becomes the seat of inflammation ; its vessels are too minute, its organization too feeble, to permit the occurrence of any thing which can with propriety be termed inflammation.”

Mr. M. agrees with Delpech, Demours, Wendt, and Walther, that what is ordinarily termed cataract is the death of the lens, “ that it has ceased to be a living part in the animal machine :” the reasoning by which he arrives at that conclusion is very ingenious ; but we must refer our readers to the book itself.

Speaking of the operation of extraction, Mr. M. says :—

“ We may be enabled to remove nearly the whole of the lens and its capsule, but some of the fragments of each may remain, and may baffle our efforts to withdraw them ; and if after having carefully introduced the grooved end of the curette, and endeavoured to scoop them away, or rubbed the surface of the cornea gently with that instrument, they still remain, it would not be proper to make any further attempt ; they will generally become absorbed, and even if they do not, they will do less injury by remaining than would be sustained by a protracted attempt to remove them.”

Mr. M. states, that in operating, to avoid the too sudden propulsion of the lens, which sometimes occurs when the section of the cornea is too quickly made, "he is in the habit of pushing the knife slightly backwards and forwards, with a sawing kind of motion, as soon as he has completed the puncturation, and has finished the section, with the exception of a small portion of its lower part," as he attributes to the jerk of cutting the remaining slip the propulsion of the parts. A preference is given to dividing the upper half of the cornea, on account of its interfering less with vision afterwards. In treating of the operation of solution, we know not how the admirable instrument invented by Dr. Jacob, of this city, has escaped the observation of Mr. M.

The articles on Myopia, Presbyopia, Hemeralopia, Nyctalopia, are excellent, but our limits will not permit quotations. Many curious affections, such as immobility of the eyeball, oscillation, &c. are treated of with the hand of a master.

In glaucoma, the preternatural fulness of the globe of the eye often renders puncturing necessary, and the consideration of this operation leads to the question, "Are the septa of the vitreous humour usually absorbed in very advanced life?" The author answers that "he believes they are," for that on puncture being made in very old persons, the fluid will stream from the eye in a pretty free current, and not *guttatim*, as in the perfectly healthy eye: also, that what has been termed "increased fluidity of the vitreous humour, is nothing more than a destruction of the cellular arrangement of the hyaloid membrane."

That it may be very necessary frequently to evacuate the vitreous humour we are willing to allow, but we cannot by any means admit that the operation, which Mr. M. states his intention of performing, is founded on just or correct physiological premises, namely that of injecting a quantity of clear lukewarm water. Mr. M. is led to this determination by the observation having been made in animals, that, after the complete discharge of the vitreous humour, it is replaced by a transparent watery fluid.

Judging from analogy, having seen simple water cause violent inflammation in injections after tapping in hydrocele, we would be led to think that serious inflammation, if not undoubted mischief, would arise from such practice in the eye, at least until we are able to imitate the products of secretion.

In a practical work of this nature, the subject matter of which has formed a course of lectures, there is necessarily a good deal of repetition, a circumstance not to be deplored in lectures, where the object should be to impress upon the mind of the student the opinions of the lecturer, but which we con-

ceive might have been omitted in the publication ; but whilst indulging in this mild censure, we are bound to acknowledge that each chapter—each subject treated on, might almost stand by itself as a monograph, which for plain reasoning and elaborate compilation stands at present unrivalled.

The affections of the ocular appendages, are equally well treated of as those of the eyeball itself, and the whole work manifests great industry and a talent for accurate observation, which is invaluable to the medical practitioner or lecturer.

We regret that the space allowed us for notice of this work, does not admit of more extensive quotation, but we feel that it is a work which may be left to plead its own cause with a discriminating public. We feel no scruple in saying that in our opinion it is not only useful, but most practically important.

S. L. L. B.

Sketch of the Comparative Anatomy of the Nervous System, with Remarks on its Development in the human Embryo. With plates. To which is added, An arranged descriptive List of the series of illustrative Preparations and Drawings, and an anatomical Table of the Analogies existing between the Brain of the Human Fœtus, and that of the Lower Animals. By JOHN ANDERSON, M. E. S., Honorary Fellow of the Physical Society of Guy's Hospital.

“Non fingendum aut excogitandum ;
Sed quid natura faciat, observandum.”

BACON.

THIS essay has for its main object, the demonstration of the remarkable analogies existing between the permanent condition of the brain in the lower classes of animals, and its transient condition in the human fœtus at certain stated periods of development ; to effect which the author has given more or less brief anatomical descriptions of the nervous system in each class of animals, according as it suited his purpose ; following, as he states, “the path which the illustrious Tiedemann has pointed out,” and making it his chief aim to strengthen and confirm the observations made by that most zealous anatomist.

The author states that much of the comparative anatomical details is taken from dissections of his own, and the illustrations, for the most part, are copies made by himself from preparations of his own dissections.

The comparison and analogy is pursued from the first appreciable appearance of the nervous system in the echinodermata, to its most perfect development in the human species. In the tables of comparison, the embryo brains of the human foetus at the third, fourth, fifth, and succeeding months are placed in juxta-position with the permanently formed brains of the fishes, reptiles, birds, and mammalia, thus giving at a single *coup d'œil*, the various analogies in the most striking manner.

The author apologizes for having introduced a brief outline of the principles of transcendent anatomy, principally obtained from the work of Carus, a masterpiece of patient research; and the author declares, that though he can hardly agree with the details of the science, yet its general applications have all the appearance of correctness.

Speaking on anatomical data (and principally those derived from comparative anatomy) being the best ground-work for the superstructure of physiological hypothesis, the author asks,—

“If we wanted to become thoroughly acquainted with a very complex piece of mechanism, would not the most correct way be, to take that machinery to pieces, to examine each part in all its bearings, to investigate its peculiarities apart, and afterwards, its relations with the other parts? So, in a similar manner, ought the anatomist not to be content to commence with the complicated machinery of the human brain when put together, but go to the earliest formation of the individual parts, and watch their gradual development, till arrived at perfection.”

This is extremely difficult to perform in human embryology; but here, the great value of comparative anatomy comes to our assistance.

Having given an outline of the transcendental system, Mr. A. proceeds to investigate the systems which have been pursued by various philosophers, amongst the majority of whom the nervous system is assumed as the ground-work of classification, as being that, from which all the other parts apparently owe their functions, development, and well-being.

“Dr. Virey, a French physician and naturalist, long since assumed the nervous system as his basis, in forming an arrangement of the different classes of animals; Cuvier did the same to a certain extent. Carus, in his *Anatomie Comparée*, classes animals according to the characters and state of development of their nervous system, and arranges them in circular groups; a plan which has been followed in this country, with some success, by Mr. Mac Leary, who considers ‘that all natural groups, whether kingdoms, or any subdivisions of them, return into themselves; a distribution which he expresses by circles, each circle being formed precisely of five

groups; larger groups being connected by the intervention of lesser groups, which he denominates osculant. Time and patient investigation only can prove whether these theories be true; the arrangement is certainly one which (as Kirby and Spence observe) nearly approximates to what we see in nature, and I have no doubt that (under certain modifications,) it will be found, eventually, the most correct."

"Mr. M'Leay assumes the nervous system as his basis in the arrangement of animals, and divides the whole kingdom into five groups:—1st. Vertebrata, in which the nervous system has only one principal centre. 2nd. Annulosa, in which it is ganglionic, with the ganglia arranged in a series with a double spinal cord. 3rd. Mollusca, in which it is ganglionic, with the ganglia dispersed irregularly, but connected by nervous threads. 4th. Radiated, in which it is filamentous, with the nervous threads radiating from the mouth. And 5th. Acrida, in which this system is mollecular. To this arrangement," says our author, "I propose to adhere, with this trifling modification, that amongst the acrita I should not feel disposed to arrange the tænia, and other lowly organized entozoa. We might, I think, with equal propriety, introduce there many of the lowly organized tunicata. I would rather confine the acrita to the polygastrica, the porifera, the polypifera, and the acalipha provisionally. With regard to the arrangement of the classes composing these large groups, I have not been able to find any precisely, according to those results which I have arrived at, in my recent investigation of the nervous system of animals."

The arrangement which the author finds to be most practical and correct, as founded upon the degree of development of the nervous system in the animal kingdom, is, as follows:—

Group 1. Vertebrata.	{	Mammalia.	Group 3. Mollusca.	{	Cephalopoda.
		Aves.			Pteropoda.
		Reptilia.			Crepidopida.
		Amphibia.			Gasteropoda.
		Pisces.			Conchifera.
Group 2. Articulata.	{	Insecta.	Group 4. Radiata.	{	Tunicata.
		Arachnida.			Echinodermata
		Myriapoda.			Acelapha,
		Crustacea.	Group 5. Acrita.	{	(provisionally)
		Annelida.			Polypiphera.
		Cirrhopoda.			Porifera.
		Rotifera.			Polygastrica.
		Entozoa.			

Through these classes, which accord very nearly with the classifications of Dr. Grant and Professor Carus, the author traces the nervous systems commencing with the last, and commencing

with the human ovum when presenting itself in the form of a thin membrane, enclosing a quantity of transparent limpid fluid, when in that form presumed to be the primary form of all organic matter the spherical, thence his deductions proceed, rising with the scale of creation.

Comparing the development of the human spinal cord with that of reptiles, Mr. A. says :

“ Let us again turn to the consideration of the spinal cord in the human foetus, where we find, according to Tiedemann, that up to the sixth month it contains a large central canal similar to that described in the reptile. With regard to its extent and size, at the fourth, fifth, and sixth month, it gradually diminishes in relative size ; it descends into the sacrum, and the middle and posterior enlargements are obvious.”

Age of Foetus.	Breadth of Spinal Marrow on a level with the Medulla Oblongata.	Breadth of Brain.
Fourth month,	$2\frac{1}{2}$ lines.	8 lines.
Fifth,	$2\frac{1}{2}$ do.	12 do.
Sixth,	3 do.	15 do.

These points I have observed myself at the fourth and fifth months ; it is not until the sixth month that there is any trace of a canidiform expansion, and at the seventh month it reaches no lower than the last lumbar vertebra, and the nerves representing the canda equina are rather large ; from this time up to the ninth month, it becomes rather shortened and contracted, till it extends no lower than the third lumbar vertebra : from these short statements, it is impossible not to be struck with the analogy these changes represent in the batrachian reptiles. As I have observed, in the tadpole state of the frog, the spinal cord is of equal diameter throughout, and passes down through the coccygeal vertebra ; but as it increases in development, and its metamorphosis takes place, the tail becoming absorbed, and extremities developed, a retraction of the spinal cord takes place precisely the same as in the human foetus, and enlargements are evident for the origin of the brachial and crural nerves, as I have described in the adult frog.”

In a general review of the brain in reptiles, Mr. A. draws particular attention to three principal parts, viz. the olfactory tubercles, the optic lobes, and the cerebellum. Each of these

parts he designates by the titles 1st, 2nd, and 3rd cerebral masses.

“ The description of the first cerebral mass in the reptilia will be about represented in the human species in a foetus of four months.”

The analogies with regard to the other masses are followed up in like manner. Pursuing this plan, the author thinks himself warranted in drawing the following conclusions.

1st. That nature follows an uniform plan in the creation and evolution both of the brain of the human foetus and of that of vertebral animals.

2nd. That the brain of the human foetus, at certain stated periods, during its passage from a simple to a complicated state, is twice represented in nature ; that is, by a permanent form, and by a transient form of the brain of a lower class of animals. Thus the human foetal brain at the fourth month is permanently represented by the reptiles, and transiently represented by the foetal chick at the sixteenth day, and the foetal sheep at the eighth week.

3rd. That the analogies in the structure of the brain in the human foetus and in animals are uniform in their existence, and are applicable to each portion of the cerebral mass, at one stated period of its development in man, and in one particular class of animals. Thus the analogy in the conformation of the human foetal brain at the fourth month, and in the reptiles, exists in each portion of the cerebral mass, and not in one particular portion only.

4th. That the definite periods at which these analogies are most apparent, may be established as under :—

HUMAN FOETAL BRAIN.

BRAIN OF ANIMALS.

3rd month	. . .	Fishes.
4th month	. . .	Reptiles.
5th month	. . .	Birds.
6th month	. . .	Mammalia, (Ruminantia, Carnivora.)
7th month	. . .	Mammalia, (lower Quadrumana.)
8th month	. . .	Mammalia, (highest Quadrumana.)
9th month.		

This work possesses considerable merit, and gives evidence in its author of a mind highly capable of minute research, and originality of idea. We hope that at some future period he will be enabled to pursue still farther the at present highly interesting subject of Neurology, which in the treatise before us he has done with so much ingenuity and success.

We have also received from the pen of the same author a

paper on Renal Dropsy, illustrated by cases and a dissection, but upon which, as it has appeared before the public in Nos. 25 and 26 of the fifteenth volume of the London Medical Gazette, we do not feel it necessary to make any remark.

S. L. L. B.

A Practical Treatise on the Diseases of the Skin, arranged with a view to their Constitutional Causes and Local Characters ; including the Substance of the Essay to which the Royal College of Surgeons awarded the Jacksonian Prize, and all such valuable Facts as have been recorded by Continental Authors on these Subjects, to the present Time. By SAMUEL PLUMBE, late Senior Surgeon to the Royal Metropolitan Infirmary for Children, and Acting Surgeon to the St. Giles and St. George's Parochial Infirmary, &c. Fourth Edition, revised, corrected, considerably enlarged, and with additional engravings. Price £1 1s.

THE author, in his preface, states, that he has been induced to bring forward the fourth edition of his work, (which certainly eclipses the other three,) from a wish to render the sphere of its utility greater, by reducing its expense to the student ; first, by curtailing, as far as possible consistent with utility, all historical, pathological, and descriptive details ; secondly, by avoiding numerous and expensive illustrations.

This work, valuable for its original matter, is rendered still more so by the review therein taken of the works of Alibert and Rayer, of which the author, although he evidently looks with dissatisfaction on the new nomenclature adopted by the former, has largely availed himself.

In treating on the structure and anatomy of the skin, the illustrations are taken from the researches of MM. Breschet and Roussel de Vauseme, both most accurate anatomists.

The author has not taken any notice of measles, scarlatina, and small-pox, or any of the exanthemata, considering that they would be "out of place in this publication, the condition of the surface forming so very small a feature, and their treatment being for the most part fully understood."

The author states

"That he hopes that he has, with some pretensions to diligence, availed himself of all the sources which he could command, to make his work such as the English practitioner may place some confidence in," and that he has endeavoured "to make the present undertaking a register of things not theorized on, but known."

The preliminary remarks on the structure of the skin are worthy of the closest attention; the opinions of Chevalier, Breschet, and Roussel de Vauseme are canvassed at considerable length. Speaking of the rete mucosum, the author says:—

“In former editions of this work I had uniformly expressed my disbelief of the existence of a rete mucosum separate and distinct from either the cutis or cuticle, or as the peculiar deposit of the colouring matter of the skin, as attached to, and forming a part of either. Such evidence as I could adduce, however, seemed to be rather of a negative than positive character. I could neither trace it in the human race nor any other species of animal, of whatever complexion or colour of the hair. Its existence had been doubted by several anatomists of repute; but it was described, and still continues to be described, though not *demonstrated*, by teachers in our schools. It is moreover said to be shewn in a variety of preparations in the Museum of the College of Surgeons. Besides all this, there was the authority of Malpighi for its existence; the question has, I think, now been set at rest by the report of MM. Breschet and Roussel de Vauseme.”

The results of their inquiries led them to consider the skin as consisting of six constituent parts.

“1st. The dermis. A cellular canvas, dense, fibrous enveloping and projecting the capillary blood-vessels, the lymphatics, the nervous filaments, and the parenchyma of other organs contained in its substance.

“2nd. The papillæ. The organ of touch, termination of the nervous system, developed under the form of nipples, slightly inclined, terminating in blunt points, concealed under several envelopes.

“3rd. The perspiratory apparatus. The organs of secretion and excretion of perspiration. It is composed of a glandular parenchyma and the sudoriferous canals. The parenchymous or secretory organ is seated in the dermis, and from it arises the excretory canals, spirally shaped, and taking their course obliquely, passing between the papillæ and terminating on the surface of the cuticle.

“4th. The apparatus of inhalation, or absorbent canals. These canals resemble the lymphatics; they are situated in the corneous substance, or mucous body, which forms the bed of the external dry cuticle, for the latter is dependent on the former for its production and support. The inhalant vessels do not appear to have open mouths on the surface, but seem to originate in the form of a cul-de-sac, or small round protuberance. All else is unsatisfactory as regards their origin on the surface. At their opposite extremity, they communicate with, and terminate in a network of vessels, composed of an intermixture of lymphatics and veins.

“5th. The apparatus producing the mucous matter,—composed, firstly, of a glandular parenchyma or organ of secretion, situated in the substance of the dermis; secondly, of excretory canals originat-

ing in that structure, and depositing the mucous matter among the papillæ before described.

“ 6th. The apparatus producing the colouring matter, or *appareil cromatogène*, composed of a glandulous parenchyma, situated a little more deeply than the papillæ. The excretory ducts passing from this structure terminate under the cuticle amidst the papillæ. The excretory vessels of the organ of the colouring matter distribute that secretion over the surface of the dermis and its papillæ, and this being mixed with the mucous secretion before described, seems to have led to the mistake of Malpighi. ‘ De ce melange resulte le prétendu corps reticulaire de Malpighi.’ ”

Although the author is not inclined to receive the whole of the observations of Breschet and his *confrère*, as indisputable facts, particularly as a great deal of their experience is adduced from microscopic observation, a medium by no means free from the chances of error, and from the skins of animals, and principally from that of the whale, in which the analogy may or may not hold good, yet he adopts them as the most correct which have as yet been made. He has given some illustrations copied from their work, to which he has added two figures from his own microscopic observation.

“ 1st. The apparatus for secreting the hair. 2nd. The cutaneous or sebaceous follicles, each of which are too frequently connected with the more formidable diseases of the skin to deserve secondary consideration.”

The author then sums up the particular structures, as connected with various functions, and consequently, with various diseases.

- “ 1. The sudatory pores, or hydrophorous canals.
- “ 2. The papillary structure, the seat of taste and touch.
- “ 3. The absorbent, or lymphatic vessels.
- “ 4. The structure secreting the colouring matter.
- “ 5. The organs producing the germ of the cuticle.
- “ 6. The sebaceous follicle.
- “ 7. As perforated by, and lending its assistance to, the growth of the hair.

“ These are all the things which we must deal with as realities because we have the best evidence of their existence, in their products, and the obvious necessity for them in the animal economy. The forms and figures of the different organs under the eye of the microscopist are perhaps of little importance ; but the pathologist must plainly perceive, that here is a structure so complicated, with so many duties to perform, and so dependent on the healthy performance of internal and vital organs, as to leave no doubt, that neither local applications nor internal remedies are to be exclusively relied on in the

treating the disease of the skin, whether they wear an active or chronic character."

Again, the anatomy of texture appears the ground-work on which our author forms his classification.

"I am of opinion that the variation of *form* of cutaneous disease, is produced by the derangement more or less of certain portions of the cutaneous apparatus."

The circumstances which modify cutaneous diseases are laid down as follows:—

- "1. Hereditary conformation and irritability of the skin.
- "2. Climate and seasons of the year.
- "3. Uncleanly habits.
- "4. Coexisting internal malignant disease.
- "5. Scrofulous constitution.
- "6. Syphilitic or pseudo-syphilitic disease."

We do not think this list perfect, without the addition of mental impressions; however, the author alludes to them himself when speaking of Leprosy.

We cannot fully enter into the sentiments of Mr. P. in regard to the little danger there is of repulsion on the internal organs, in the cure of cutaneous diseases of long standing; and independent of the manifest cases which we ourselves have seen, the evidence of too many distinguished physicians weighs down the opposite scale, yet the author does not run into the opposite extreme of denying that there is any danger; his words are:

"Nevertheless, I am compelled to withhold my belief in the existence of any such danger, in any case where no vital organ has suffered from long continued derangement or actual disease. It appears to me that a well-grounded fear of removing superficial disease, must be constituted only of positive knowledge, or at least reasonable suspicion of existing disease of vital organs, or of a state of repletion of the sanguineous system. In the first place, it cannot be wise to suppress a long standing inflammatory affection of the surface, without substituting some analogous counter-irritation for it; in the second, it is generally easy to make the necessary degree of preparation. There are many affections of the surface, which will preserve their inflammatory character for years, while internal organic disease is advancing. When the latter approaches its destructive termination, these seem to disappear suddenly. The pathologist is able to explain this circumstance; but the ignorant witnesses are but too apt to confound cause with effect."

"There must be a weak part in some organ to justify the medical practitioner in abstaining from the free exercise of his art in the cure of cutaneous disease; for though the latter does not often endan-

ger, it very commonly embitters the life of the patient, and becomes gradually the cause of bodily and mental decay."

The author thinks that the influence of baths, particularly medicated ones, has been overrated by foreign practitioners :

" With the exception of one particular disease of the skin, however, I have had many reasons for withholding my confidence in them as regards this class of affections, and to be brief, the result of my experience only leads me to depend on the sulphur vapour bath in cases of lepra and psoriasis. In such cases again, the instrument is sometimes worse than inert, if the state of constitution be not attended to."

Even in the above-mentioned diseases the author does not recommend the sulphur bath till the disease has refused " to yield to constitutional remedies directed towards the invigoration of the system ;" then, as a collateral agent, " it gives tone to the debilitated vessels of the cutis, while it diminishes their irritability. Beyond this, none of these so much lauded and advertised baths have proved of any more utility in diseases of the surface, than the common warm water bath, if followed by a little friction with the towel."

Mineral waters internally administered do not appear to stand in very high favour with Mr. P., and in most cases he attributes the benefit to be derived from them, principally to the entire change of habit, air, &c., and his mind appears not to be decided as to the *modus operandi* of the chalybeate springs. Speaking of Tunbridge Wells, he says :—

" Still, if the iron contained in the water be capable of acting as a tonic, active cases of impetigo, or other affections of the skin, accompanied by repletion, or marked by local irritation to a great degree, would be more likely to become aggravated than cured by it. In truth as regards chalybeate waters, we must become converts to the homœopathic system, to believe that the small quantity of iron contained, even though the waters be taken liberally, can be of any great use as tonics."

It is only as adjuvants that any of the mineral waters are admitted by our author, but as such he does not deny their utility in many diseases.

The basis of the classification adopted by Mr. Plumbe is " Founded on the constitutional causes of the disease, and due consideration of the organic structure and physiology of the part of the skin on which it was seated."

These, certainly, are more rational grounds than external appearances, as adopted by Willan.

We cannot here enter into a detail of the various cuticular

diseases treated of, from want of space, further than by a few remarks and quotations from the most prominent.

The comparisons drawn between lupus and cancerous diseases are as follows:—

“1st. Its situation; cancerous diseases usually first occurring on the lower lip.

“2nd. The uneasiness belonging to it is in no case described to be worse than are comprehended under the general designations, of heat, itching, tingling, or smarting, while schirrous ulceration is accompanied by severe darting pains.

“3rd. Diseased enlargements of the contiguous glands do not often make their appearance in its train, even though the disease has existed for years, which is not the case in cancer.

“4th. The surface of the sore is never occupied by fungous granulations, or has thickened and hardened or everted edges, but retains its peculiar character to the last.”

In the treatment of *noli me tangere*, the author recommends

“General alteratives, as Plummer’s Pill, and the Decoct. Sarsæ. Comp. any important derangement of the digestive organs, or febrile excitement being first removed by adequate means. If no advantage is derived from these in combination with common sedative applications, arsenic ought to be used both internally and externally.”

He recommends its administration in the form of Fowler’s solution, the dose being gradually increased till some manifestation of tendency to disorder of the stomach and bowels occurs, when it should be entirely withheld, and purgatives, with opium, substituted. In some of the public institutions, the following recipe is preferred to that of Fowler.

℞ Kali Arsenicati, gr. iv.
Aq. Menthæ Sativ. ℥iv.
Sp. Vini tenuior. ℥i.
Misce et cola.

The author expresses strong objections to any unctuous applications, it being his opinion that they increase the heat of the parts and the irritation; whilst the spirituous arsenical solution possesses the double advantage of the specific effects of the arsenic, with the sedative properties of the spirituous evaporation. Nitrate of silver in solution is sometimes used by the author when arsenic fails; and he states that he “has applied the strong nitric acid to the parts, and produced a healthy sore, which speedily healed.”

He expresses an opinion, that the want of success in the treatment of lupus, arises either “out of the difficulties of keep-

ing the parts free from the vicissitudes of the atmosphere, or the patient from habits destructive to his general health."

The following remark we conceive to be extremely judicious :

" Another cause of disappointment and difficulty may be traced to the practice of directing the attention to the centre, or other broken parts of the surface of the disease, to the exclusion of proper notice of the surrounding diseased skin. Thus the adjacent parts, to the extent of several inches, studded with the diseased follicles, far advanced towards ulceration, are not interfered with in their progress in any manner ; and if, perchance, a healthy action should be brought on, on the ulcerated surface, the vexation of perceiving some of the former far advanced, and rapidly taking on the scabby ulceration of the latter, is often the result. If proper applications are made to the circumference of the diseased skin, and healthy action be first established there, the disease will often give way, till the skin resumes its natural appearance, even up to the margin of the ulceration ; and it is evident that, under these circumstances, the latter has a much better chance of being covered by healthy granulations. I am entitled to say that this is a practice which has been much more frequently successful than any other, consisting of applications to the worst or broken parts of the disease."

A curious passage occurs in the article *Porrigio* :

" What, my readers will impatiently ask, do French authors tell us is the proper treatment of these diseases ? To which I respond, with regret, we are not permitted to know it. M. Alibert would have told us, if he could ; so would MM. Rayer and Biett. The secret rested twenty years ago with MM. Mahon, père et fils, and is now confined to MM. les frères Mahon ! Pity it is that the spirit of July did not visit the hospital of St. Louis ! M. le Baron Alibert, Physician to the King, refers to MM. Mahon, who have treated thirty-nine thousand cases of disease of the scalp by a secret method, for a statement of the proportion one form of the disease bears to another, and thinks it worth his while to give as an authority, MM. Mahon's answer !"

In ringworm of the scalp, Mr. P. recommends the application of undiluted sulphuric acid to the spots, the hair having first been cropped as short as possible ; and as soon as smarting and redness come on, that a wet sponge should be employed to remove the superfluous acid, and prevent it affecting the skin too deeply.

The author, in considering the opinions of M. Alibert on *Lepra*, condemns him of confounding *lepra* with *elephantiasis*, two diseases, than which he deems none can be more unlike.

One particular application, in form of an ointment, and which

he has also found useful in lupus, is spoken of in very high terms, viz. :

“ ℞ Hydrarg. submur.
Plumbi superacetat. a ʒss.
Ung. Hydrarg. Nitrat.
—— Cætarei a ʒij. M.”

“ It quickly subdues the inflammation of the cutis, and produces a healthy cuticle. Its composition may not bear the test of chemical criticism, perhaps ; but as remedies are estimated by their useful effects, this is of no importance.”

The general treatment recommended is constitutional and tonic, change of mode of life and scene.

The general description of Herpes, from its correctness, is worthy of attention :

“ The attention is usually attracted to the cutaneous affection by a sensation of heat, and tingling in the part. On examination, a blush of bright redness is discovered, in the centre of which a few small vesicles, varying in size, appear to have been recently formed ; near to it a smaller patch of inflamed skin is discovered with a smaller number of vesicles, and perhaps a short distance from this, another without a vesicle upon it, or with a minute resemblance of a pimple, which in an hour or two becomes a perfectly formed vesicle, and is surrounded by others less advanced.”

Such is the primary appearance of the eruption ; the after stages have been sufficiently well described by all authors who have written upon this subject.

In the chapter on Purpura, the author very unequivocally recommends the use of purgatives, and after citing many cases and opinions, says :

“ On a review of the foregoing cases, it will be observed—1st. that a striking uniformity of symptoms, indicating hepatic congestion, and general disorder of the digestive organs ; of those organs on the proper performance of the functions of which, the formation of blood, capable of conveying nourishment and the materials of growth to distant parts of the body depends, occurs in all of serious importance. 2nd. That these symptoms, consisting of constipation, dyspepsia, oppression of the chest, pain and tenderness in epigastrio, headach, &c., have been pretty clearly ascertained, both by the state of pulse during life, and by examination of these organs after death, as well as by the absence of important marks of inflammation in the blood, drawn by venesection, and also by the effects of blood-letting, not to depend on a state of actual inflammation. 3rd. That the constant effect of purgatives, in dislodging vitiated secretions, consisting chiefly, apparently, of accumulations of black biliary matter, has been

pretty uniformly followed by the most strikingly beneficial change in the symptoms, while recovery took place in no instance without free purging."

In conclusion, the author apologizes for departing from his original intentions, that of confining the subjects of his work to the consideration of cutaneous diseases most familiar, and the knowledge of which may be most valuable to English practitioners, by the addendum of a very copious appendix, taken from the work of M. Rayer, in which many uncommon diseases are treated of, such as horny productions of the cutis, morbus pedicularis, filiaris medinensis, barbadoes leg, senki, aleppo pustule, radesyge, Jewish leprosy, malum mortuum, facaldine, sibbens, pian de nerae, framboesia or yaws, and many others. The plates are well executed, and coloured.

S. L. L. B.

SCIENTIFIC INTELLIGENCE.

Case of Congenital Hernia Cerebri, by Dr. Etmüller of Oberwiesenthal.—The subject of this case, who was born after a tolerably easy labour of eight hours, reckoning from the commencement of the pains, came into the world, to the great terror of the midwife, who mistook it for a child with two heads. The swelling was fluctuating, and larger than the head, to the back of which it was attached, by a peduncle about an inch and a half in thickness; the scalp was continued over it, but became extremely thin towards the base of the tumour. No opening could be felt in the bones of the skull at its root, and the posterior fontanelle was closed. Pressure on the base of the tumour, and moving or drawing it to one side or the other, produced convulsive twitches of the muscles of the face, and feeble cries. The infant was full grown and mature, but not well nourished, and its voice was weak and squeaking. Next day it appeared tolerably well; most part of its time was passed in sleeping, it took nourishment freely, and had from four to six alvine evacuations daily. The flow of urine was scanty, and it was generally passed with much whimpering. On the fourth day a pulsation was noticed on the tumour; this increased on the fifth, and appeared to be but very slightly diminished by pressure. On this day, the tumour happened to get twisted a little on its axis, owing to the carelessness of the nurse, in consequence of which, the child cried incessantly for two hours, until the mistake was discovered and rectified by the mother, on which the child became tranquil, and slept for several hours. On the seventh day it began to vomit its food, and this symptom continued up to the period of its death. On the ninth day, it had convulsions of the muscles of the face and limbs, which continued until the twelfth, when they were superseded by coma, and the child died on the thirteenth day, having remained for the last twenty-four hours without taking any nutriment.

On dividing the tumour close to its attachment to the occiput, Dr. Etmüller found an opening, about an inch in diameter, situated about the centre of the occipital bone, through which a portion of the brain, about the size of an apple, and weighing two ounces and a half, had passed with its investing membranes. It did not appear altered in its structure, and exhibited the usual appearance of convolutions on its surface. The vessels were greatly

congested. The remainder of the tumour was composed of a watery fluid, which amounted to sixteen ounces. A considerable quantity of the same kind of fluid flowed from the cavity of the skull. Dr. Etmüller was not allowed to examine the rest of the brain or the bones of the skull.—*Clarus and Radius's Journal*, 3 Band. 2 Heft.

Injury of the Head, with Loss of more than an Ounce of the Substance of the Brain.—Dr. Paul, of Mylau, communicated the following case at a meeting of Voightland Medical Society, May 30, 1834.

A servant maid, aged 32, of good constitution, fell on the 29th of April, 1834, from a building two stories high. Dr. Paul found her shortly afterwards in a state of insensibility, her breathing stertorous, mouth spasmodically closed, pulse hard and full, eyes closed, (the right protruded from its cavity,) pupils dilated, and insensible to light. At the left side of the forehead, exactly over the upper supra-orbital fissure, there was a circular opening, about the size of a halfpenny, from which full three drachms of the substance of the brain had escaped. The left collar bone was also broken. On enlarging the external wound, Dr. Paul found that the fracture extended from the back part of the opening upwards and backwards until it joined the coronal suture. The enlargement of the wound was followed by a separation of the edges of the fracture to the extent of a quarter of an inch, and the escape of a considerable quantity of blood, after which, the protrusion of the right eye disappeared. The bleeding was then arrested, cold lotions applied, and tincture of opium rubbed over the stomach to allay the vomiting. Next morning the patient opened her eyes, and exhibited some signs of returning consciousness. The wound was further enlarged, the depressed portion of bone elevated, and the edges of the fracture kept apart with a piece of whalebone, in order to favour the efflux of blood, &c. and obviate the necessity of trephining. Another fracture, extending from the original opening to the sagittal suture, and forming a triangular space with the former, was discovered; pulse soft; bowels opened by an enema.

1st May. Patient tolerably well; ordered to take calomel and digitalis. On the 2nd, the catamenia made their appearance, and went on regularly and without any inconvenience. On the 7th, the pulse became full and hard again, for which she was blooded to $\frac{3}{4}$ xvj. Ordered to omit the calomel and cold lotions, to have nitrate of potash with tamarinds, and to have the wound dressed with ointment of marsh-mallows.

9th April. A portion of the brain is discharged daily; a piece, about the size of a plum, has forced its way through the edges of the fissure. Notwithstanding these symptoms, the return to a state of consciousness was more distinct every day, and the morbid irritability of the patient diminished. 13th. The prolapsed portion of the brain smaller; sleep, appetite, and digestion regular. 18th. Up to this

period about an ounce of the substance of the brain has been discharged. Pulse small and frequent; patient complaining of weakness and exhaustion. Ordered to take sulphate of quina. 20th. Strength increasing; all the functions regular. About a drachm of the substance of the brain discharged daily. Motion of the brain and pulsation of its vessels observable; formation of granulations on the substance of the brain between the fissure. 22nd. The power of recollection, which up to this period had been suppressed, has returned. 26th. The prolapsed portion of the brain still smaller; the pulsation of the cerebral vessels no longer visible. 28th. The healing of the wound has gone on so favourably, and the patient finds herself so well, that she is anxious to do some little work about the house if permitted.

On the sixtieth day after the receipt of the inquiry the detached portion of bone, which was about the size of a halfpenny, was removed, and on the seventy-sixth, the external wound was completely cicatrized, so that the patient was able to pursue her ordinary labours without any inconvenience.—*Clarus and Radius's Journal*, 3 Band. 2 Heft.

Fatal Enteritis produced by Lumbrici.—Doctor Petrenz of Schandau has published the following case in *Clarus and Radius's Beiträge zur Practischen Heilkunde*, Band 3, Heft 2.

A girl aged nine years, of feeble habit, and pale, cachectic appearance, and, from the poverty of her parents, accustomed to poor and insufficient diet, was attacked with pains in the abdomen, and periodic thirst. After these symptoms had lasted for some time, she was seized with vomiting, and threw up a lumbricus. She then got rigors, followed by heat of skin, pain in the bowels, and violent thirst. When seen by Dr. Petrenz, her face was covered with a cold perspiration; her hands cold and blue; feet moderately warm; belly distended and painful; bowels confined for two days; urine suppressed; tongue moist; great bodily weakness; but no affection of the sensorium. The usual remedies were promptly applied, but three hours afterwards, the whole body became cold, the respiration laboured, and the patient, having discharged a lumbricus, with a large quantity of blood, per anum, suddenly expired.

On opening the abdomen, the intestines were found in a state of gangrene, particularly the cæcum, colon, and rectum. The right and left flexures of the colon were distended with a mass of lumbrici; in the former, Dr. Petrenz counted fifty worms, in the latter, nearly as many. The remaining portion of the large intestine contained also a considerable quantity. The number found in the whole intestinal tube was computed to be about 200. No trace of mucus, or any of the usual contents of the intestines could be discovered. The rest of the abdominal organs were in the normal state. There were no worms in the stomach. There was no perforation in any part of the digestive tube, nor were there any worms found in the cavity of the peritoneum.

Eighteen Tape-worms in a single Patient! Communicated by Dr. Ettmüller to Dr. Radius.—The patient in this case was a young woman, aged 22, of a robust constitution, and who had never laboured under any remarkable affection. Soon after the appearance of the catamenia, she was attacked at irregular intervals with pain in the abdomen, and a gnawing sensation in the intestines, alternating with diarrhœa, sometimes referrible to errors in diet, sometimes occurring without any apparent cause. On many occasions, she was suddenly attacked during her meals with uneasiness and vertigo, which, however, were in general of brief duration. She was also from time to time seized with a violent pain in the belly, which she could not accurately describe, and on such occasions obtained instantaneous, but transitory relief, by taking a draught of very cold water.* She frequently laboured under heart-burn, but never vomited; and was subject to fits of oppression of breathing, sighing, and sometimes constant yawning. She suffered much from hemi-crania of the right side, particularly over the eye and forehead, a constant sense of pressure on the globe of the eye, dilatation of the pupils, and swelling of the upper eyelids, giving to her eyes a half closed, sleepy look. She also complained of pain running from the point of the left shoulder along the collar bone to the sternum, a feeling of stiffness in the limbs, and cramps in the calves of her legs. The catamenia were slow, usually only once every five weeks, and occasionally alternated with leucorrhœa. Her complexion was yellowish and clay-coloured, her disposition very variable, being sometimes peevish and irritable, sometimes extremely mild. There was no abdominal tenderness present.

She had been treated for amenorrhœa and disease of the liver, and subsequently by Dr. Ettmüller for derangement of the digestive system, for the space of two years, during which no trace of tape-worm appeared. In February, 1836, she began to pass small pieces, and this induced him to have recourse to anthelmintics. The treatment employed was that recommended by Schmidt. The preparatory mixture brought away several pieces, from a quarter to half an ell in length. On the 8th of March, she took one of Schmidt's pills every hour, from six to eleven o'clock, A. M. She vomited twice during the day, and passed several fluid evacuations, containing several joints of tape worm. At two, P. M. she was obliged to discontinue the pills, in consequence of the violent retching and gastrodynia which they produced, and took castor oil in half ounce doses, which she also gave up after the third dose. Towards evening the vomiting ceased, and she fell asleep for about an hour. On awaking she passed a knot of worms, which, when uncoiled, proved to be four entire tape-worms. About one o'clock in the morning, she awoke again with a violent pain in the abdomen, and passed nine more.† She took the same

* Rosenstein regards this as a pathognomonic sign.

† These worms were sent to Dr. Radius and exhibited by him to the Medical Society at Leipzig. They were all furnished with heads, but had contracted so much from lying in the spirits of wine, that the longest did not measure more than two feet.

medicine again twice during the two following weeks, and had several slimy discharges from the bowels, without any trace of tape-worm, so that her cure was considered to be complete, and, with the view of improving the digestive function, she was ordered to the medicinal waters at Franzensbrunn. Two days, however, before her departure she passed a portion of tape-worm, and another in July. On her return to Oberwiesenthal in August, she passed two more entire worms. She was now ordered to take the Decoct. Corticis Granati (℥iij. ad O i.) night and morning. This was continued for five days, and then followed by an active purgative, which brought away three entire worms. In order, however, to render the cure more certain, she was directed to take the decoction a few days longer, and afterwards the compound infusion of senna, occasionally. Up to the 24th of December no further traces of tape-worm had been observed.—*Clarus and Radius's Journal*, Band. 3. Heft. 2.

Curious Case of general Miliary Eruption, followed by a general Furuncular Eruption.—We extract the following case as a remarkable instance of one of those singular constitutional affections, which are most generally observed about the septennial periods of middle life. The orders of sequence in the eruptive affections, noticed in this case, namely, first miliary and then furuncular eruption, is one not unfrequently observed in diseases originating in a direct constitutional taint.

An officer of the customs, aged 50, of robust constitution, but subject to derangement and obstruction of the biliary system, which he had increased by the liberal use of brandy, was attacked with languor and loss of appetite, followed some days afterwards by rigor, heat of skin, and the appearance of a miliary eruption all over his body.—When examined by Dr. Petrenz, on the second day of the eruption, his whole body, not even excepting the eyelids and hairy scalp, was covered with vesicles containing, some a clear, and others a turbid fluid. Where the eruption was thickest, the skin had a scarlet hue. On the inner side of the hands and fingers, the epidermis was raised by effusion of thin puriform lymph. A violent burning and itching sensation, and profuse sweats, rendered the patient's condition almost intolerable. The glands of the neck, arm-pit, and groin, were swollen and tender, the pulse accelerated but soft, the skin warm and moist, the head unaffected, the breathing free, the tongue moist and loaded towards the root, thirst moderate, deglutition rather impaired, appetite undiminished. The liver was somewhat enlarged and tender on pressure, the urine high-coloured and discharged in small quantity, bowels free, feet œdematous.

Under the use of deobstruents and laxatives, followed by diuretics, the eruption disappeared on the fifth day, and was followed by a desquamation of the cuticle, like scarlatina, but in a much higher degree. The epidermis was detached from the hands and feet in very large pieces, and shortly afterwards the nails began to drop off; from the rest of the body, the cuticle fell off chiefly in scales. The fever

now became diminished, the pulse slower, the heat of the body natural, and the œdema of the feet was fast disappearing under the use of diuretics, which had produced a copious flow of urine, when a furuncular eruption made its appearance over every part of the body, except the extremities. The back of the head, neck, breast, belly, axillæ, and groins, (particularly the latter,) were the parts most attacked. All the subcutaneous glands continued swollen and tender. The patient was ordered to continue the use of aperients and diuretics, and an attempt was made to restore an habitual perspiration from the feet, which had been suppressed some time before, by exposure to cold and wet. These measures succeeded to a certain extent, and the œdema of the feet diminished sensibly, but the formation of new furuncles, and the profuse suppuration of older ones, weakened the patient so much, that Dr. Petrenz found it necessary to give wine, tonics, and generous diet. The slow character of the ulceration, and the formation of a large anthrax over the right shoulder, delayed the patient's convalescence for a considerable time, and it was three months before his health was completely restored.—*Clarus and Radius's Journal*, Band. 3, Heft. 2.

The Common Carotid tied in a Child, aged fifteen Months, by Dr. Edward Zeis, Dresden.—A. D., the child of a miller in Dresden, was born with a vascular nævus, about the size of half a pea, and situated on the left cheek, in the vicinity of the ear. This gradually increased in size, notwithstanding the continued employment of astringents and various other remedies, and its growth was greatly accelerated after an attack of hooping-cough, when the child was about twelve months old. In the fifteenth month, when seen by Dr. Zeis, it presented the following appearance: The tumour extended anteriorly across the cheek, to within a short distance of the left corner of the mouth, upwards as high as the zygomatic arch; behind, it lay close to the meatus auditorius externus, and passing under the ear, stretched upwards and backwards behind the latter, involving the lobe; below, it was bounded by the angle of the jaw. In the anterior part of the tumour, and in the portion which lay behind the ear, the cellular membrane only was engaged, the superincumbent skin being healthy, with the exception of a slight bluish colour, and some degree of transparency. The central and more elevated part, which lay immediately in front of the ear, exhibited enormous dilatation of the capillary vessels of the cutis. A round spot, about two inches in diameter, situated at the most prominent part of the nævus, was distinguished from the rest by a tangled mass of capillaries, some of a bright red and others of a deep blue colour, and remarkably turgid, particularly in the vicinity of the ear. The tumour projected two inches beyond the regular outline of the cheek, was soft, capable of bearing strong pressure, painless, without any excoriations, and had never bled. Sometimes it appeared very large, warm, tense, and greatly distended with blood, (particularly during the full moon;) at other times it was much smaller, softer,

more flaccid, and cooler. The child's general health was good, with the exception of some irritation produced by teething; it had been gaining flesh since its recovery from the whooping-cough, and was beginning to walk.

The extirpation of the tumour presented difficulties and dangers of so threatening an aspect, that Dr. Zeis determined on tying the carotid artery. Previously, however, to undertaking this operation, he resolved to try what effect powerful astringents might produce, and with this view employed the following application for several weeks, without any perceptible diminution in the size of the tumour. \mathcal{R} . Gallarum Turcic. Pulv. \mathfrak{z} vi., Aquæ fortis, lb. i., coque ad. \mathfrak{z} viii. et cola; adde Liq. colato Extract. Hippocast., Aluminis crudi āā \mathfrak{z} ii., Sulphatis Zinci, gr. iv.; fiat lotio. Alum whey was also used internally, at the same time, but was given in consequence of its producing diarrhœa.

On the 30th of August, 1834, the operation was performed in the presence of Professor Ammon, Dr. Hedenus, Dr. Gescheidt, and Dr. Richter. We give the details in Dr. Zeis's own words:—

“The little patient was laid upon a table, her body fixed by assistants, and her head turned towards the right side. An incision, two inches and a half in length, was now made in the integument, exactly along the inner edge of the sterno-cleido-mastoid muscle. After a short time the knife was laid aside, and I employed only the handle of a scalpel or my finger in endeavouring to reach the vessel. A vein, about the thickness of a quill, lay across the bottom of the wound, and obstructed my further progress; this I tied, and divided below the ligature. There was no arterial hæmorrhage, but dark venous blood oozed out from the parenchyma of the divided parts, as from a sponge; this was arrested by dropping creosote water into the wound, and then soaking it up with a piece of sponge.

“The small size of the neck, in so young, and for its age, very delicate child, and the displacement of the muscles of the neck, arising from the position of the head, greatly increased the difficulties of the operation. The tendinous portion of the omohyoid muscle lay quite in the lower half of the wound. The cellular sheath of the large vessels was next raised with one forceps, and an opening torn in it with another, and I was able to see the internal jugular vein at the bottom of the wound, but could only feel the carotid. Another large gush of venous blood now issued from the bottom of the wound, but was arrested immediately by creosote water; a remedy, from which I have frequently derived much benefit, in similar emergencies. The vein, which had been tied in the beginning of the operation, became so distended with blood, that the ligature threatened to give way, and I was obliged to apply another higher up. While I was endeavouring to separate the jugular vein with my finger, in order to get between it and the carotid artery, a sudden noise was heard, as if something had torn, and as the wound lay close to the cavity of the thorax, I was afraid a perforation had taken place. The alarm, however, appeared to be groundless; and, after much trouble, I suc-

ceeded in passing a blunt ligature needle, bent laterally from the handle, under the artery. A portion of cellular membrane, which lay over the head of the needle, was divided, a strong silk thread introduced, and, having satisfied myself that there was no nerve, or other part included, the needle was withdrawn, and the ligature knotted.

“During the operation, the child had alternately screamed loudly, and then lay quietly, and the temperature of her body had diminished somewhat, although the loss of blood amounted only to a few ounces. Towards the end of the operation, she began to sob, and when the ligature was tightened, broke out into a violent fit of screaming, during which, her voice appeared somewhat altered, and hoarser than usual. The tumour immediately became smaller and paler, shrivelled up, and exhibited in various spots a greenish yellow colour, like an ecchymosis of four or five days’ standing. The wound was covered with a fold of lint dipped in creosote water, and united by means of strips of adhesive plaster. Temperature of the skin low, pulse tranquil, about eighty beats in the minute. The child took a few spoonfuls of warm sugar-water, and then fell asleep, during which a proper degree of heat was kept up by comfortable covering, and flasks filled with warm water. A few hours afterwards, she fell into a gentle perspiration, and the pulse rose; she also occasionally screamed out in her sleep. In the evening the pulse was 108; fever moderate; appetite normal; thirst increased; restlessness, alternated with sleep. She was ordered an antifebrile mixture, and small doses of calomel. In the course of a few days, the feverish symptoms disappeared, and, notwithstanding a slight degree of irritation, produced by the appearance of some back teeth, about ten or twelve days after the operation, every thing went on favourably.

“For some time after the operation, the little patient was attacked with fits of coughing, whenever she swallowed any thing; this symptom, however, which, in all probability, depended on the swollen and inflamed state of the muscles of the neck, disappeared after eight days. Her respiration was at all times easy and natural, but her voice remained for a long time hoarse and squeaking, and never regained the strength or clearness of tone which it had possessed before the operation. It was also remarkable, that the little patient had a habit of sobbing frequently, which she had never manifested previously, and for which no cause could be assigned. These phenomena, I must confess, seem to shew, that a nervous twig was included in the ligature; and, I can only state, that although I made an accurate examination before drawing the ends of the ligature, I could not discover any thing of the kind.

“The wound, which was at first pale, perhaps owing to the creosote water, suppurated favourably. On the fourth day, the ligature applied to the vein came away, and on the following night, a considerable venous hæmorrhage took place, which recurred six times the following day, but was each time arrested by means of creosote water. On the morning of the eighth day, I cut short the ligature applied to the ca-

rotid, with the view of allowing the wound to heal. Having been obliged to remove the dressing in the evening, in consequence of its being again soaked with blood, I found, to my surprise, the little loop of the ligature lying at the lower angle of the wound. Its early detachment might, perhaps, have been favoured by an attack of vomiting with which the little patient was seized about this period. Up to this time, the application of the creosote water had, in some measure, prevented the process of granulation; after this, the wound filled up rapidly, except at a single point, from which matter continued to flow until the 11th of November, when complete cicatrization took place."

It has been stated that the tumour collapsed immediately after the ligature was tied. Two hours afterwards, when the temperature of the body rose, it began to swell again, but in the evening differed remarkably in size from its former state. During the following days and weeks, it varied in point of size, being sometimes larger, sometimes smaller, but always in proportion to the turgor of the skin. Several weeks after the operation, it increased with the nutrition of the whole body, and was remarkably large when the infant cried, but it never grew beyond its original size, and the portion behind the ear had quite disappeared. With the view of producing the absorption of the remaining part of the tumour, Dr. Zeis determined to try the effects of pressure, and with this view applied over the swelling a piece of lead covered with leather, and fastened with a steel spring. This apparatus was applied at first for half an hour at a time, and by degrees for a longer period. On the third of November, a few days before the wound was completely cicatrized, the child was suddenly attacked with convulsions, and hemiplegia of the *right* side. These symptoms were followed by increasing debility, emaciation, and exhausting perspirations, and the little patient died on the 22nd of December, sixteen weeks after the operation. For several days before death, she laboured alternately under tonic spasms of the flexor and extensor muscles of the right extremities. The vascular nævus had completely disappeared, leaving behind only a few loose folds of skin. The parents would not permit the body to be examined.—*Zeitschrift für die gesammte Medicin*, Band. 3, Heft. 1.

Exarticulation of the Thigh Bone at the Hip Joint, performed successfully by Professor Jaeger of Erlangen.—Elizabeth Schuster, a peasant girl, aged 25, residing at Vach, about two leagues from Nuremberg, was admitted into the Surgical Hospital at Erlangen, on the 27th of August, 1832, with the view of undergoing amputation of the thigh, which had been proposed to her by Professor Jaeger some time previously. An examination of the case gave the following results:—The patient, from her twelfth to her fifteenth year, had a small suppurating fistula, situate above the internal condyle of the left femur, which, neither during that period nor subsequently, when it healed up, interfered with the free use of the limb. Until a year before her admission, she was in excellent health, menstruated regularly, and exhibited no trace of the scrofulous diathesis. About

this period, the whole of the left lower extremity was attacked with swelling, (probably in consequence of repeated exposure to cold,) and fourteen days afterwards, two abscesses formed above the condyles of the femur, which burst spontaneously, and discharged a considerable quantity of pus. The knee then swelled in a remarkable manner, and she got violent pains in the joint, accompanied by hectic and emaciation. The lower half of the left thigh was moderately swollen, and slightly painful on pressure. The knee joint, which was bent at an obtuse angle, was stiff, and nearly three inches thicker than the healthy one. She complained of deep seated pain in it, particularly at night, and when pressure was made on the patella or internal condyle, during which a yielding of the bone was also felt. Above the condyles of the femur were two fistulous openings, through which a probe could be introduced into the femur, and into the cavity of the knee joint; the former was found to be necrosed, and the latter carious. She laboured under general emaciation, and suppression of the menses for the last year; her fever, however, was moderate; the night sweats had ceased; and for some weeks her appetite, digestion, and sleep had returned to the normal state. Professor Jaeger gave the diagnosis of caries of the knee joint, resulting from necrosis of the condyles of the femur, and recommended amputation at the upper third of the thigh. On the 8th of November, the operation was performed under Professor Jaeger's directions, by one of his pupils, in the following manner:—

“An assistant, standing at the opposite side, compressed the femoral artery with his fingers against the horizontal ramus of the pubis. The operator, who stood at the outer side of the limb, passed a double edged knife through the upper third of the thigh, and formed the external flap, four inches in length; then with the large incision knife made the semicircular incision through the skin and muscles at once, about a finger's breadth below the point where the knife was introduced in making the first incision, and then separated the remaining adherent portions of muscle from the bone with a small knife. The soft parts were drawn back by the hands of assistants, and held without the aid of slit bandages, the bone removed with Brünninghausen's saw, and the femoral and profunda arteries tied. In sawing through the bone, which yielded very readily, and allowed the lower portion to break off, we suspected that it was carious, and on examining the cut surface, we found it internally carious, although the outer lamina appeared sound, and was covered by periosteum. I therefore laid bare the bone with the scalpel to the extent of two inches upwards, and removed it; but finding the caries extend still farther, I removed a slice about three or four lines in thickness, with the small bow-saw. This laid open a real carious fistula, which passed behind the trochanter major up to the very summit of the bone, and a part of the trochanter minor was found stripped of its periosteum. As tedious suppuration, and even death, might ensue from leaving the carious end of the bone behind, I determined to exarticulate it, and with the small convex knife (Brasdor's) enlarged the anterior angle

at the base of the flap, two inches upwards, separated the soft parts from the bone on every side, cut through the insertions of the muscles at the trochanter major and minor, (an operation which allowed the bone to be grasped and turned in various directions,) divided the capsular ligament and ligamentum teres with ease, and removed the head of the bone from the acetabulum. The cavity of the latter was found perfectly healthy. The bleeding during the second sawing, and the laying bare of the end of the bone was altogether trifling, and was easily stopped by means of wet sponges. The stump was now, it is true, too abundant in flesh, and I could have easily removed the outer flap so as to make a simple circular wound, I wished, however, to avoid fresh injury and hæmorrhage, particularly as the patient exhibited the precursory symptoms of syncope, and proceeded therefore to unite the wound, which was accomplished by means of interrupted sutures and strips of adhesive plaster. The lower (posterior) angle of the wound was left open to favour the escape of pus from the wound, and particularly from the cavity of the joint. No bandage was employed; the limb was laid on a chaff cushion, covered with oil-cloth, cold lotions applied, and the patient ordered to use orgeat for her common drink."

After the operation, the patient had a brief attack of syncope. During that day, and the following night, the pulse was very small and rapid, and the face pale, but there were no rigors, and the pain of the stump was inconsiderable. The patient took merely ten drops of laudanum, and in the evening a cup of broth.

Second day. Face still pale, pulse small, considerable thirst; the stump is somewhat swollen, but not painful. Orgeat and cold applications continued.

Third day. No pain; the stump somewhat more tumified, and its skin of a shining white colour; bloody serum discharged from the lower angle of the wound; thirst and pallor diminished, pulse rather fuller and not so quick. The adhesive plaster and three sutures which appeared very tense were removed, the cold lotions omitted, dossils of lint smeared with cerate laid over the wound, which was retained in apposition by strips of adhesive plaster, and a compress with a three-tailed bandage. The patient took some wine gruel, and some light wine and water. Orgeat at night as before.

Fourth day. Patient slept last night for the first time, and has not the slightest pain in the wound; swelling of the stump diminished, pulse slower and stronger, thirst moderate, temperature of the skin normal, complexion improved. The dressings, which were soaked with pus and bloody serum, were removed, and the rest of the sutures taken away. The wound was for the most part united; the summit of the external flap exhibited a bluish tint. Aromatic fomentations; soup and beer.

Fifth day. The summit of the flap is of a darker blue, and has lost its epidermis; bloody serum discharged from the lower angle of the wound. Chocolate, broth, and yolk of eggs to be added to her diet.

Sixth day. The dark portion of the flap about two fingers in breadth. Under the use of aromatic fomentations and pyroligneous acid this slough was completely detached on the nineteenth day, and the suppuration, which had been all along moderate, improved. On the twelfth day the ligatures came off both the vessels. On the twenty-second, the aromatic fomentations were discontinued; the wound was granulating kindly, and the pus was of a most favourable character. On the fiftieth day, the wound was cicatrized, with the exception of a spot about the size of a sixpence, and a small fistula, extending towards the cavity of the joint. The patient increased daily in strength and flesh, and on the sixty-second day, menstruation, which had been suppressed for a year, reappeared. On the sixty-sixth day, she was attacked with varioloid, and sent into the medical wards of the hospital, where the fistula healed, and the wound became completely cicatrized.

On leaving the hospital the cicatrix was firm, and drawn inwards, so as to be surrounded by protuberant ridges of flesh. The patient was in vigorous health, and able to move about very well with the aid of crutches.

Professor Jaeger attributes the success of the operation to the goodness of the patient's constitution, the mildness and simplicity of the after treatment, and to the mode in which the operation was performed. He thinks, that the usual mode of performing it is attended with much more risk of dangerous hæmorrhage, and is much more terrible to the patient, and is of opinion, that exarticulation with the primary amputation in the upper third of the thigh, deserves to be imitated much more frequently than it has hitherto been.—*Zeitschrift für die gesammte Medicin*, Band. 3, Heft. 1.

Case of internal Strangulation of the Intestines.—The child of a saddler, aged seven years, who, according to his mother's account, had frequently suffered from violent, but transient attacks of pain in the bowels, for which he had been treated with anthelmintic and antispasmodic remedies, was attacked suddenly one morning while taking coffee; and, notwithstanding the prompt employment of antiphlogistics and narcotics, died in five hours after seizure. The body was opened by Dr. Seerig of Königsberg, and exhibited the following phenomena.

On opening the abdomen, the viscera appeared to be in their normal position, but presented considerable differences of colour in different parts of the small intestine. The upper part was of a dull white, with a few dark points interspersed; the lower part was of a dark purple, and strongly injected. Between these, a portion of the intestine was found to be completely strangulated by a membranous string, about the thickness of a pack-thread, which was stretched across from the ascending to the descending colon. This string was of the usual character of filamentous growths, and was probably the result of preexistent inflammation.—*Rust's Magazin*, Band. 46, Heft. 3.

Case of Carcinoma Uteri treated successfully with Milk Diet, and large Doses of Conium.—Madame F., aged 50, had been six times pregnant, all her labours being natural, and completed without any interference of art. The catamenia had been tolerably regular, except that occasionally they appeared at longer intervals than ordinary. In other respects, her health was good, and she had never laboured under any remarkable malady. About the period when the catamenia generally disappear, she was attacked with a train of unfavourable symptoms, had profuse metrorrhagia, became pale, emaciated, and fell into a bad, cachectic state of body. She complained of severe darting and burning pains in the region of the pelvis, stinging sensations in the breasts, and great weakness. She now began to discharge an ichorous matter from the vagina, mixed with clots of blood, and the attacks of hæmorrhage became more frequent and formidable. Dr. Melhose of Barleben, whom she consulted about this period, pronounced the disease to be carcinoma of the uterus, and an examination of the diseased organ confirmed his opinion.

The patient was ordered to restrict herself to a milk diet, and use daily injections of lime-water and milk, and subsequently of a solution of extract. hippocast. in lime-water. Under this plan of treatment, the constitutional and local irritation diminished, and Dr. Melhose proceeded in the next place to the employment of full and continued doses of conium. A pill weighing two grains, and composed of equal parts of the extract and powdered leaves, was given, at first, morning and evening; on the third day she took an additional one, and went on in this way, increasing the dose by an additional pill every third day, until she took twenty-nine pills twice a day, that is to say, one hundred and sixteen grains of conium in the twenty-four hours. The remedy was continued until the sinking and retardation of the pulse, the occurrence of dyspeptic symptoms, alternating with diarrhœa, slight tonic and clonic spasms, somnolency and narcotism, obliged Dr. Melhose to discontinue its further employment. Under this treatment, the malignant character of the disease disappeared, the ichorous discharge and hæmorrhages ceased, and the patient's health became re-established. While taking the conium, she used the injections daily, and continued the milk diet for some time after all the symptoms of her disease had vanished.—*Rust's Magazin*, 46 Band. 3 Heft.

A Case of Intussusceptio treated with Reguline Mercury.—In the summer of 1829, Dr. Seerig was called to see the wife of a labourer, who was said to have a hernia, and to have been confined to her bed for several days. On making inquiry, he found that in attempting to lift a large bucket of water, she had suddenly felt a most violent pain in the right groin, in which she had previously noticed a small tumour, about the size of a hazel nut. Supposing it to be a hernia, she made attempts to reduce it with her hands, but not succeeding, she had recourse to the following means, which is a very popular remedy for such accidents among the poor in Silesia. A couple of round slices of bread, with a few threads dipped in melted sulphur,

are laid over the centre of the abdomen ; the threads are then set on fire, and when the air is sufficiently exhausted, a large wide mouthed beer glass is clapped on, which acts after the manner of a dry cupping glass. This remedy, however, proved unsuccessful, and when Dr. Seerig came, he found at the spot where the hernia was supposed to exist, a moveable, soft, and elastic swelling, about the size of a hazel nut ; the belly was hot and tense, the pulse small and extremely rapid, the tongue dry, brown, and furred, thirst insatiable, extremities cool. On more minute inquiry, he found that she had laboured under periodic pains, felt chiefly about the umbilical region, and that when the attack was violent, a hard swelling had been occasionally felt in that situation. General and local bleeding, emollient cataplasms, antispasmodics, enemata, and calomel were tried for ten days without effect. Dr. Seerig was about to have recourse to an operation, when he resolved to make another experiment, and proceeded to administer reguline mercury, which was given in divided doses, until the patient had taken to the amount of two pounds. This remained for three days without coming away, until at length, by the use of repeated enemata, thrown up with a long elastic tube, the bowels yielded, the mercury was discharged, and the patient completely recovered.—*Rust's Magazin*. Band. 46, Heft. 3.

Case of Elephantiasis of the Scrotum, by Dr. Seerig, of Königsberg.—Johann Friedrich Wittig, a labourer, from Kreidelevitz, near Glogau, aged thirty-four, was admitted into the Hospital of the Brothers of Mercy at Breslau, in the month of June, 1832. The patient was of a robust habit, and born of healthy parents ; he had enjoyed good health up to his eighth year, when he was attacked with swelling of the glands of the right groin. This was treated with emollient poultices, burst spontaneously, and healed up in the course of half a year. About fifteen months afterwards a tumour, about the size of a hen's egg, made its appearance above the symphysis pubis, and gradually involved the scrotum, but was neglected until it attained the size of two fists, and began to cause considerable inconvenience. In his twentieth year he entered the Hospital of the Brothers of Mercy at Breslau, where, for the space of twelve weeks, he was treated with antimonial and mercurial remedies, without any benefit. About the period of his discharge, a scaly eruption had made its appearance on the scrotum. In his twenty-fourth year he had a considerable swelling of the submaxillary lymphatic glands, which he opened himself with a razor, and healed. He then attempted to cure the swelling of the scrotum in the same way, and with this view made an incision in it several inches in length. Here, however, he failed ; the wound, after discharging a considerable quantity of pus, healed up, and the tumour continued to increase as before. During this period his general health was not at all affected ; his functions were normal ; he was able to go through his usual avocations as a day labourer, and could even ride on horseback, by placing the tumour before him like a

cushion on the pommel of the saddle, and holding it firm with one hand.

When admitted, he presented the following appearances :—The tumour, which involved the integuments of the penis and scrotum, hung down to his knees, by a thick peduncle, which extended backwards as far as the anus. Two lateral sulci, and one posteriorly, divided it into three portions or lobes. The base of the tumour below was very broad, so as to cover both his thighs when standing erect, with his lower extremities approximated. Of the penis he had scarcely any recollection for the last ten years; but in the centre of the tumour, about seven inches from the symphysis pubis, something like a long thick leather bag was seen twisted on its axis, and furnished with an opening through which the urine passed. This, on closer examination, was found to be the prepuce and skin of the penis. The greatest circumference of the tumour measured three feet; from the anus to the symphysis pubis, two feet five inches; the diameter of the broadest part of the base was fourteen inches; its diameter, from before backwards, twelve inches. At each side the integument was of a bluish-red colour, anteriorly greyish white; at each side of the peduncle and behind, the tint was normal. The tumour was hard, and without any sense of fluctuation; the penis or testicles could not be distinctly felt. Over the inferior broad portion of the swelling, the skin was remarkably thick, fissured, and knotty; and on the most prominent parts small vesicles had formed, some of which had burst, and were covered with a thin crust. The odour of the patient was exceedingly unpleasant.

On the 19th of June, 1832, the operation was performed by Dr. Seerig in the following manner :—

“ The patient was laid on his back, with his thighs separated, and the tumour resting on the edge of the table. I then made, on the left side, with a large convex bistoury, an incision four inches in length, commencing at the abdominal ring, and passing downwards. This was for the purpose of reaching the left testicle, and as a preparatory step for the remaining part of the operation. A second incision, of the same length, and for the same purpose, was made in a similar direction on the right side. Both testicles were readily found; the left larger and firmer than the right. During this part of the operation, the hæmorrhage was very considerable, and I was obliged to tie several vessels. Having stopped the bleeding, I laid hold of both incisions with my left hand, and taking care to avoid the glans penis, I united the two incisions by a transverse one, in order to gain a covering of skin for the penis, separated the latter, and finished the operation by two semicircular incisions which were united to each other posteriorly, and with the perpendicular incisions anteriorly, so as to form an artificial scrotum. The operation was frequently interrupted by the blood which poured out from large venous and arterial branches and obscured the wound; these vessels however were tied readily, and having satisfied myself that the generative organs were sound, and removed a diseased portion of the covering intended for the penis, the

edges of the incisions were united. The testicles were then placed behind and on each side of the penis, and covered with the semicircular flaps; the penis enveloped in the sound skin of the middle portion, as far as its state allowed, and the parts united with interrupted sutures and strips of adhesive plaster. The operation, which lasted forty minutes, was finished by applying pledgets of lint, compresses, and a T bandage.

The detached portion of the tumour weighed twenty-seven pounds. The sub-cutaneous cellular tissue was an inch in thickness, filled with serum, and extremely vascular.

During the latter part of the operation, the patient became faint, but was quickly revived by the use of stimulants. Some hours afterwards, he appeared tolerably well, and passed some urine. Some degree of reaction then set in, and he continued to labour under more or less feverishness until the fifth day, when the febrile symptoms disappeared. On the third day the sutures were removed, and the dressings changed. A large quantity of serum flowed from the inferior angle of the wound for several days, but the suppuration was of a favourable character, and the patient felt but very little pain in the wound. On the seventh day several of the ligatures came away; the patient slept well, and had a good appetite. On the tenth day he got a cough, for which he took extract of hyosciamus with laurel water, and afterwards used blisters and acetate of morphia after the endermic method. Several days had passed without anything remarkable, when the patient was attacked with profuse and exhausting sweats, which however yielded to the use of acids in about a week. The uncovered portion of the penis was now covered with cuticle and cicatrized, when the patient, without any obvious cause, became exceedingly dejected, and lost his appetite and sleep. These symptoms, however, yielded to venesection, and on the 19th of August he was discharged. At the period of his discharge, the cicatrization of the wound was completed. Towards the end of his stay in the hospital, an habitual discharge of perspiration from the groins and thighs, which had disappeared for many years, returned.

From the foregoing and other cases, Dr. Seerig concludes, that elephantiasis of the scrotum is in general a purely local disease, that it is never benefited, and often injured, by internal remedies, and that a timely operation affords the best chances of a cure.—*Rust's Magazin*. Band. 47, Heft. 1.

New Method of reducing Dislocations of the Humerus.—M. C. Gerard has employed the following method of reducing dislocations of the humerus with success for the last fifteen years. All the cases were recent, but he thinks it might be employed in any dislocation of this kind. The patient being seated in a chair, an assistant, placed on the side opposite to the luxation, passes his arms round the neck of the patient, and, crossing his hands over the luxated shoulder, opposes the efforts made by the surgeon to replace the bone. The surgeon, stationed on the injured side, places his left forearm beneath

the upper part of the dislocated bone, as near as possible to the armpit. He then approaches his patient so closely as to allow the cubital end of the dislocated humerus to rest against his own side, whilst he supports it longitudinally as near as possible to the trunk of the patient. The surgeon then draws the articulation in a direction upwards and outwards, and without using much force the bone is easily replaced.—*Archives Generales de Medicin*, Juillet, 1836.

New Treatment of Strictures of the Urethra.—M. Jobert, Surgeon to the Hospital St. Louis, recommends the following treatment as adapted for the cure of the most obstinate strictures. Having ascertained the situation of the stricture, the surgeon oils a bougie, and then dips it in burned alum, reduced to an impalpable powder. If the stricture is old and very narrow, he dips the bougie again in oil, and afterwards in the alum powder, so that there are two layers of alum on the bougie. The instrument is then introduced gradually, pressed gently against the obstacle, and afterwards fixed in the urethra by means of tapes. Sometimes two hours are sufficient to overcome the obstruction, and allow the patient to pass water; at other times it does not succeed until next morning. It is necessary to introduce the bougie, similarly medicated, for many days, until it reaches the bladder. M. Jobert states that the inflammation produced by this application is moderate, and that the discharge soon ceases.—*Journal Hebdomadaire*, September, 1836.

Stuttering caused by the Presence of intestinal Worms.—A boy aged five years, who had previously been able to pronounce the most difficult words distinctly, and communicate his thoughts readily, began all at once to stutter, to the great surprise of his friends. As no organic defect could be discovered, Dr. Schultze, under whose care he was placed, conceived that the impediment might be produced by worms, as he had often noticed an entire loss of speech for many days from this cause. He therefore ordered the child to take daily an electuary, composed chiefly of jalap, tansy, and sulphate of magnesia. After using this for some time, the boy discharged a large quantity of ascarides, and was restored to the free use of speech.—*Medicinische Zeitung*, January, 1836.

Acupuncture, as a Remedy for Rheumatism, by William Markley Lee, M. D. of Indian Town, S. C. Few diseases are reported to be cured by a greater variety of remedies than rheumatism, and few are subject to greater disappointment in the attainment of the expected results. This arises principally from the circumstance, that rheumatism is of a two-fold character, entonic and atonic, requiring the closest discrimination in treatment, as the remedies proper for each form are diametrically opposite in their action.

The detail of all the remedies for rheumatism would occupy much space, and convey little new information. My present object will be, to give my experience in the use of one remedy, in my

opinion not sufficiently appreciated. It was about six years since, after reading the practice of Churchhill, Cloquet, and others, I was induced to try this remedy on my patients, in cases apparently suited to it, and, for the sake of brevity, I will give a sketch of a few of these cases.

CASE I.—I saw an old negro woman, the gardener of one of my friends, limping at her work, who, on inquiry, stated that she had rheumatism of the knee. I had not at that time tried acupuncture, but feeling disposed to make the experiment, told her in a jocular manner, that I could cure her with a needle; to this she was extremely averse, fearing the pain, but after some persuasion consented. Having fitted the larger end of two slender needles into small phial corks, I kept the skin of the inner surface of the knee tense with the thumb and forefinger of the left hand, and introduced them to a moderate depth with a slow, alternate, semi-rotary motion. As their points entered the skin, she complained of slight pain, which being pierced, she scarcely felt them: after about ten minutes, I directed her to bend the knee slowly; to her surprise, flexion no longer caused pain, as it did previous to their introduction. The needles were then withdrawn with the same motion as inserted; not a drop of blood was lost; even the places of insertion could not be seen; and what was infinitely more important, the pain had vanished. A few minutes after, she complained of it at the inner side of the ankle, whence, after about the same lapse of time, it was routed as from the knee. The old woman was so delighted that she danced for joy. For several days she continued free from her old complaint, but after being again exposed to the exciting cause, damp weather, it was renewed. The experiment was not repeated.

CASE II.—A lady was subject to rheumatic stiffness of the neck, after exposure to a damp atmosphere, particularly at night. On one occasion I found her with her head so fixed, that rotation was impossible. After some persuasion, she consented to the introduction of the needles; of which two were inserted, one on each side of the vertebræ. As their points touched the posterior fasciculi of the cervical nerves, she complained of an acute tingling sensation, like an electric shock, which induced me to retract the needles slightly. After about fifteen minutes, I requested her to make an effort to turn her head, which to her surprise she did, with no pain except that which arose from the pressure of the muscular fibres upon the points of the needles. The relief was prompt and permanent.

CASE III.—I had the misfortune some years since to luxate my left clavicle, in consequence of which I have been occasionally subject to rheumatism of the deltoid muscle on getting wet. I have in repeated attacks laid bare the shoulder, and requesting some friend to keep the skin tense, introduced three needles around the shoulder. Previous to their introduction, I could not raise the arm to a horizontal direction, unless aided by the other hand, and suffering severely. The pain caused by the needle inserted into the anterior fibres of the muscle, was decidedly the most acute, evidently arising from the

contiguity of the nerves which supply the arms. In fifteen minutes I was free from pain, and could move the arm with perfect ease, upon which the needles were withdrawn. Months elapsed before I experienced any return of the rheumatism.

CASE IV.—An old seaman laboured under entonic rheumatism of the deltoid muscle; the shoulder was sensibly hot, but being a topical disease, at the request of the physician of the marine hospital, of which he was a patient, I consented to try acupuncture; he, like myself, could not elevate the humerus to a horizontal direction. The needles were introduced, and suffered to remain two hours; extraction was found extremely painful and difficult; the corks were detached, and it was necessary to thread the needles in order to extract them. Before insertion they were highly polished; after extraction they were blackened, and deeply corroded completely *around* the portion at the surface of the skin; the imbedded portion irregularly. It is well known that the nerves are expanded as a delicate net-work over the entire surface of the skin; it is also supposed that the nervous and galvanic fluids are identically the same. May not the greater abundance of this galvanic or nervous fluid at the surface, account for this more complete corrosion of that part of the needle? The pain was by no means removed; indeed he suffered so much from the extraction, that no persuasion could induce him to submit to any variation of the experiment. He was subsequently cured by other means.

CASE V.—A young man applied to me, to try the effect of acupuncture upon a chronic pain of the loins, which had been treated unsuccessfully by some of the most eminent physicians of Charleston; cupping, blistering, rubefaciants having all been tried with only temporary benefit. On the insertion of the second needle, if I mistake not, he fell back into my arms in a state of syncope. Having laid him on one side, I extracted the needles. He stated, after reviving, that it was not pain, but a sudden sickness, which caused him to faint. This uncommon symptom would have caused me some alarm, had I not previously met with such a case in a French Journal. I never could persuade him to repeat the experiment, although the lumbar pain was relieved for a few days.

These are a select few of many cases of rheumatism which I have treated by acupuncture; they have led me to anticipate the following results, viz. :

In acute rheumatism, the needle acts as an irritant, and is therefore improper before inflammatory action has been reduced. The effect produced in Case IV. will be a lesson to me in future never to suffer the ordinary steel needles to remain for any length of time. Under those circumstances they should be made of gold or platina.

In sub-acute rheumatism, I consider acupuncture a prompt and efficacious remedy. I frequently employ it, much to the surprise of my patients, from the trifling pain which it causes, and the promptness of relief; and equally to the astonishment of the attendants,

who rarely have faith in the remedy, until proved by positive demonstration.

In chronic rheumatism, acupuncture will relieve promptly and thoroughly, but the disease is liable to recur on the reapplication of the cause usually producing it.

It may be inferred from what has been stated, that I believe acupuncture to owe its efficacy to the transmission of the galvanic fluid. Such has long been my opinion, although I had no opportunity to ascertain the fact by the use of the battery. This point has been recently established by the experiments of Dr. Stokes, of the Meath Hospital, as republished from the London Medical and Surgical Journal into the American Journal, No. XXXIII. p. 225, *et sequent*. As this periodical is in general circulation, the reader will find the article referred to.

I consider acupuncture entitled to far more attention than it has yet received in the United States. *It is not painful*. I have never introduced the needle without the patient expressing the greatest surprise at the trifling degree of pain; indeed some have declared that if asleep it would not awake them. Of this I have some doubts. *It is not inconvenient*. Every house can furnish needles. *It is prompt and effectual*. I have never failed to produce the desired effect, in appropriate cases, within the space of a quarter of an hour; and in such cases the relief was permanent. I therefore repeat it as my opinion, that physicians have not duly appreciated its therapeutical efficacy.—*Southern Med. and Sur. Jour.*

The Cesarean Operation performed twice, successfully, on the same Woman, by Robert Estep, M. D. of Stark, Co. Ohio.—August 10th, 1830.—I had a hurried call to the wife of Geo. Stull, of Columbia county. Found the patient of low stature, full habit, a brunette of twenty years of age, in active labour from her first pregnancy. A female attendant informed me that she had been nearly in that condition for twenty-four hours. On examination, I found the soft parts well disposed and developed; the position of the head favourable, being the first presentation of the vertex; the membranes ruptured, and the waters discharged. Learning that no perceptible progress had been made for the last twenty-four hours, and finding that mere manual assistance was impracticable, I applied the forceps, and delivered the woman of a very small dead fœtus: the head compressed, and elongated to a very unusual degree. Suspecting deformity of the pelvis, I took occasion, while delivering the placenta, to satisfy myself, and found its antero-posterior diameter reduced far below any case I had met with; to a degree, indeed, which in my opinion precluded the possibility of her ever giving birth to a living child approaching the ordinary size. This opinion I communicated to the husband, and took my leave. The woman recovered without impediment.

June 22nd, 1831. Saw Mrs. S. at the house of a neighbour,

and learning that she had by a few days passed the seventh month of pregnancy, advised premature delivery. This expedient was rejected.

Aug. 11th. She was again in labour. The details of the preceding case so perfectly apply to the present, as to deprive it of interest; by extreme throes and the assistance of the forceps, she was delivered of another small, still-born child, with the same distortion of the head. I now made another and more careful examination of the pelvis, and satisfied myself, beyond a doubt, of the abnormal projection of the sacrum, reducing the sacro-pubic diameter below two inches.

Jan. 11th, 1833. Mr. S. called in my absence, and with tears requested my attendance as soon as I returned. On receiving the message I immediately repaired to his house. As soon as I cast my eyes on the patient, I observed an inordinate protrusion of the abdomen, which was perceptibly magnified at the accession of every pain. On inquiry I learned of the patient herself, that the membranes broke without any premonitory uneasiness; that during the third or fourth pain she distinctly felt "something give way," from which time the swelling of the abdomen became more and more conspicuous. By touching I found the state of the soft parts and the presentation as favourable as formerly; but the labour little or nothing advanced, the head resting on the superior strait, and the throes severe, but without any expulsive tendency. From the first half hour I had been in her presence, the unwelcome idea of a rupture of the uterus had at intervals obtruded itself upon me. At length I gave an opiate, which procured for her some respite, and for me some time for deliberation. After permitting her to rest for an hour, I commenced a more thorough examination than I had yet made: gently pressing the head of the foetus back, and resting it on the right iliac fossa, I passed my hand carefully along the anterior portion of the uterus. I had proceeded but about midway the body of that organ, when I discovered, as I thought, a longitudinal rent, and its whole anterior aspect distended to a mere membrane. Here was a formidable difficulty—one requiring prompt decision and action. The position of the hand, owing to the extreme contraction of the pelvis, was exceedingly irksome, and viewing the frequent introduction of it as a serious evil, I determined before withdrawing it to turn the foetus and deliver by the feet, well assured that I could expect no further assistance from the action of the uterus. Pursuing this determination, I grasped both feet, and brought them down: I forbear to subject the patience of the reader to the trials my own endured in vain endeavours to accomplish the delivery—suffice it to say, that after three hours of indefatigable exertion, I was unable even to get the head engaged in the superior strait. Relinquishing all hope of success by this artifice, and being thoroughly assured of the child's death, I now separated the trunk from the head, in the vague hope of being able to get a better diameter of the latter, or by locking the finger into the chin, to apply a more efficient force; but in this, likewise, I was unsuccessful.

It may be proper here to state, that I was unprovided with any instruments, save a pair of forceps and a common pocket case; nor was there any professional assistant within eight miles, whose counsel I could regard. I had endeavoured to perforate the head with a pair of pointed scissors, but the absence of any resisting force defeated the intention. Thinking it possible to succeed with a longer instrument, I went at midnight to a blacksmith's shop, a mile off, and had a rough substitute for a perforator hastily made. It is almost superfluous to add, that the same ill success attended its application.

Seeing my patient was rapidly sinking, I now, as a *dernier resort*, and as the only chance of saving her life, proposed the Cæsarean operation. Contrary to my expectation, she and her friends unhesitatingly consented, and urged its speedy execution. On my part, having for several hours contemplated the matter, I, with as little hesitation, prepared some adhesive strips, lint and bandages, armed a few needles with ligatures, &c., placed the patient in a convenient posture, and commenced the operation. My first incision, commencing about an inch below and half an inch to the right of the umbilicus, was continued downwards about seven inches, through the integuments only; directing a by-stander to draw the integuments towards the opposite side, by a second incision I divided the linea-alba and peritoneum at the same stroke of the knife, guarding the viscera by elevating the parietes with two fingers of the left hand. The uterus, now somewhat contracted, was laid bare, and the fissure perceptible, I brought the organ forward by introducing two fingers within the lacerated wound, which I enlarged with a bistoury to the extent of six inches, and grasping the head with the right hand extracted it through the wound. The extremity of the cord still remaining outside the vulva, was now taken hold of, and the placenta delivered by the natural passages. The wound, closed up with sutures and adhesive strips, was dressed with lint, and the patient put to bed, as may be supposed, much exhausted. Having been exposed to cold, loss of sleep, mental and physical exertion, for the last forty-eight hours, I gave my patient an opiate, and sought repose myself. After a few hour's sleep, I was agreeably surprised to find her as much refreshed as myself—cheerful, communicative, and taking nourishment. I gave the necessary directions, and took my leave, with a promise to visit early the next day.

13th. Patient worse; considerable fever with full pulse, tender and inflated abdomen. Drew blood copiously, and administered mild enemata.

14th. Unfavorable symptoms subsided; the lips of the external wound somewhat separated. Shews the value of the two incisions; drew it together with adhesive strips of a better quality.

15th. Patient says she feels able to be up. Lochial discharge natural.

16th. Removed the sutures; patient comfortable.

19th. Wound contracted in length to four inches, and principally healed.

23rd. Patient sits up and walks about the room ; discontinue my visits.

April 1st, 1834. Saw Mrs. S. : she states that she has again reached the seventh month of pregnancy. The plan of premature delivery is again pressed upon her, but, for reasons that will appear presently, is also again rejected. A neighbouring practitioner has insinuated himself into the family, and impressed them with the belief that he can deliver her without an operation. I am asked whether I can hold out the same encouragement, and reply in the negative. I state decidedly that no one but myself has had an opportunity of knowing her peculiar conformation ; and that except by mutilating the foetus, or the Cæsarean operation, she can never be delivered of a full-grown child. From the last conversation with Mr. S., together with other facts I had become acquainted with, I was confident the individual to whom I have alluded would be called on at her approaching confinement ; and my knowledge of the *man*, as well as the woman with whom he would have to deal, furnished equal certainty that his visit would be useless, if nothing worse, and that I should be called in at last. So certain was I of all this, that I had every instrument and agent, that I thought it possible could be called in requisition, carefully packed up where I could lay my hands on them at any moment. Accordingly, June 2nd, I received a hurried call, for which I was prepared. About a mile from town, the husband informed me that Dr. T. was there. On arriving at the house of the patient, I inquired of the attendant what was the prospect ? He replied there was no alternative but the Cæsarean operation. I demanded him to state that publicly to the friends, which he forthwith did. I, in the mean time, made an examination and found an arm presentation and a dead child. The attendant stated that it was alive long after he arrived. The patient, being clamorous for the operation, and the necessary arrangements made, was placed in the proper position and supported by assistants. On examining the old eschar, I discovered that no union of the linea-alba had taken place—I had consequently nothing to do with that tissue. By carefully making an opening for the reception of two fingers of the left hand, and conducting the bistoury between them, I completed the incision at a single stroke ; on exposing the uterus, its anterior surface was found distended and *transparent* to such a degree, that I could distinguish the members of the foetus through it, with as much clearness as substances are seen through the coats of an inflated bladder. Continuing the incision through the uterus, I extracted from it a fine, plump, full grown foetus ; the arm, neck and shoulder tumefied and discoloured, from the position it had occupied. What a pity that ignorant interference should have caused its death. Having divided the cord, I passed its extremity through the wound and os tinæ, where it was met by a thumb and finger of the other hand passed up the vagina, and again delivered it in the natural way. Clearing the blood from the wound, it was closed with the sutures and adhesive strips, dressed with lint and a bandage, and the patient put to bed without any alarming symptoms. The loss of blood did not in

either of these operations exceed six or eight ounces. It may be observed that I have made no mention of sutures applied to the wound in the uterus, as recommended by some authors : and I take this occasion to express unqualified disapprobation to their employment. The indissoluble suture, I consider dangerous ; the animal ligature, to say the best, useless. By the contraction of the uterus which succeeds parturition, the wound will diminish in a few hours from six or seven, to one or two inches in length ; and the viscus itself, from a thin, capacious bag, to an almost solid, fleshy mass. Indeed, in the last operation, I could not discover a vestige of the former eschar.

June 4th. No discouraging symptoms. 6th. Wound looked healthy—contracted to four inches in length. 8th. Wound healed, patient sits up. 12th. Visited for the last time. She was soon well.

If one example would establish a precedent, this same Cæsarean operation is the easiest mode of bearing children. This woman has ever declared, that the operations were far less severe than the pains of labour.—*Western Medical Journal*.

Measles and Paralysis, by H. Chandler, M. D. ; communicated for the Boston Medical and Surgical Journal.—B. M. H. twenty-nine years of age, rather tall, spare, slow in his movements, inclined to somnolence, was “exposed to the measles,” towards the latter part of January, 1836. February 5, began to experience the usual symptoms, with pain in the epigastrium. In the course of the night the eruption commenced, and covered the whole surface.

Feb. 6th. I saw him this morning, and found a well-marked case of rubeola, with nothing remarkable, except considerable tenderness in the abdomen. Prescribed mild cathartics. Mel. scil. comp. T. opii.

7th. Eruption continues very distinct, though not quite so florid as yesterday.

9th. Nearly well ; very little tenderness remaining. Gave mild tonics, and concluded to discontinue my visits. It seemed as if the eruption had disappeared rather too soon, but as he appeared so well, I apprehended no danger.

10th. The weather being very fine, though rather cold, patient ventured out, a short time, in the middle of the day. In the evening he smoked a cigar, and took a draught of cider—but in passing his hand to the vessel, thence to his mouth, &c., he found that his right hand was disinclined to do the will of its owner ; and soon after, in going to his bed, he found his right *leg* as *contrary* as his *hand*. He rubbed his limbs a little, however ; got into bed, and went to sleep. Some time in the night he felt a peculiar, disagreeable numbness in his leg, and his bed-fellow proposed coming for me ; but he objected—thought he should soon get over it—and took no more notice of it till morning. Before he arose, forgetting that he had experienced any bad feeling in his limbs, he had a little scuffle with his bedfellow—but the moment he put his foot to the floor, his whole body was pros-

trated. His *chum* helped him up and put on his clothes, and assisted him in walking to his breakfast table. He now began to experience some difficulty in articulating; still, neither he, nor those about him, were aware of any thing serious till about ten o'clock, A. M., when it was found that he could not speak at all. I soon saw him (Feb. 11), and found him sitting by the fire, apparently as well as ever, but not a word could be got out of him. Pulse very small, not much, if any, accelerated;* could move his right limbs but very little; *could not protrude his tongue*; all his motions very slow; nose filled with mucus, but could not blow it, even when the handkerchief was properly held to it; seemed slow of comprehending any thing; all the faculties of body and mind seemed to be failing; mouth getting full, but no power to cleanse it; deglutition difficult: whole appearance getting worse every moment.

I had seen many cases of paralysis, and had some experience in that disease, but I had never seen, read, or heard of a case whose immediate or exciting cause was rubeola. I do not know but that, in reading some authors, rubeola may have been named as being among the causes of paralysis; if so, I have entirely forgotten it. Nor was I certain that I had such a case before me. Could smoking be the cause? He was not in the habit of smoking much, and was just recovering from sickness; and could a cigar, at that time, have such an effect? Did he take cold, by going out yesterday (Feb. 10)? And even if he did, would "a cold" produce such an effect? Was it the too sudden recession of the eruption? Or was it both these causes, combined with the soporific effects of the cigar, and a somnolent diathesis?

Since writing the above, I have been credibly informed, that, only a short time before his sickness, while walking a few miles, he fell asleep, and when he awoke, found himself about half a mile from the road, in a pasture. He knew not where he was; and it was with difficulty he could recover the road again. This was "sleep-walking" in earnest.

I sent immediately for able counsel, Dr. Bartlett, of Concord, for assistance. I had not courage, alone, to venture upon very active treatment; for the powers and faculties, both of body and mind, seemed rapidly sinking; he could utter neither a word nor a groan; respiration laborious; pulse slow and very small at the left wrist, scarcely perceptible at the right; mucous membrane of mouth and œsophagus beginning to be lined with a very tenacious, viscid secretion; a dark, very thick coat forming on the tongue, and about the teeth; deglutition very difficult. Dr. B. arrived about 3 P. M. In the mean time, I had only made use of stimulating frictions, with

* I would here remark that I am taking down a history of this case, *now*, in July, four or five months since the case occurred, without having taken any notes at the time, having then no idea of making it public; but the case was so exceedingly interesting to me, that I do not fear getting materially out of the way, in describing the minutiae of the case entirely from memory.

very mild cordials and diluents. We now concluded that the most active depletion alone could save him. He bled freely, say about a pint; had a large blister on the back of his head and neck, and for twenty-four hours had very free dejections, from Cal. Jalap, &c. He also vomited considerable in the night, from the same medicine. After bleeding, the pulse rose, especially on the right side; but the next day (12th) he did not appear much better, and towards night seemed to be failing. I now directed a free use of cinchona and quinine.

Feb. 13th. Several involuntary discharges of fæces and urine, in night. Much brighter this morning, takes more notice, but cannot yet protrude his tongue, or speak; deglutition a little improved; coat on tongue a little lighter; can move his limbs a little. Continue quinine, &c.

From this time there was a very gradual, almost imperceptible amendment, till, in the course of two or three weeks, he could begin to articulate yes and no, and but very little else for several weeks more. He could use his limbs; but there remained debility, partial loss of voice, and great difficulty in articulation, for some two or three months. Some of his acquaintances strongly urged him to try the "*Thomsonian System*." Accordingly, some time in May, he went through two "*courses*." He *thought* the first helped him, but he *knew* the second was quite injurious; so he would not try a third. After this, he went to a doctor of "*Roots and Herbs*;" and whether from him, or from riding about the country, exercise, time, warm weather, or from whatever source, he certainly had improved some, when I last saw him, about the middle of June.—*Boston Med. and Surg. Journal*, Sept. 1836.

Spontaneous Amputation of a Limb in Utero.—From the last number of the American Journal, the following singular circumstance has been extracted, published on the authority of Dr. F. P. Fitch, New Boston, N. H. A healthy labouring woman, mother of six children, was alarmed, March 17th, about the sixth and a half month of gestation, by a sudden discharge of the liquor amnii. On the 21st, a substance escaped from the vagina, which proved to be a perfectly well-formed foetal foot, apparently separated at the ankle joint, in a complete state of preservation. After some hæmorrhage, requiring medical attendance, on the 5th of April she was delivered of about a seven month child, which lived not far from half an hour. A little to the left of the centre of the forehead, says Dr. Fitch, "was a horny protuberance of the size of the middle finger, projecting about half an inch. Below, upon the face, was an extensive deformity, caused by the entire absence of the upper lip and bones beneath, to a great extent. This last malformation the mother *very confidently* attributed to an accidental view of a person whose upper lip, and part of the nose had been destroyed by a cancerous sore. Upon the foot, the place of separation was contracted to the size of a small pin head, and the healing process had apparently been as

perfect, and progressed very nearly as far as that on the lower extremity of the femur." In eight months after, the same woman had twins, but both died.—*Ibid.*

Case of Nail in the Bronchia.—Dr. Brigham, of Hartford, Conn. relates, in the American Journal, a case in which a brass nail was swallowed by a girl five years of age. She was seized with coughing, which continued several days, and then subsided. One year afterwards she took cold, which was followed by increased cough, expectoration, hæmoptysis, hectic fever, night sweats, and the other usual symptoms of phthisis pulmonalis. She died in thirteen months after the accident. On examining the body, at the fourth or fifth division of the right bronchial tube, more than one inch from the bifurcation of the trachea, was found a common brass nail, half an inch long, with a head nearly the same in diameter. It was coloured black, but not in the least corroded, and appeared to be firmly fixed. The substance or outer part of the right lung adhered extensively to the adjacent parts, and contained several large abscesses that discharged pus into the bronchi by fistulous passages.—*Ibid.*

MEDICAL INTELLIGENCE.

A private individual, who had laboured under the Egyptian Ophthalmia, has placed 1000 rubles at the disposal of the Corresponding Medical Society of Petersburg, to be given to the author of the best essay on that disease. The essay is to contain an accurate description of the symptoms, pathological phenomena, mode of treatment, and prophylactic measures. The compositions are to be written in Latin, Russian, French or German, and to be delivered to the secretary before the 27th September, 1837.

The same Society has offered a prize of fifty ducats for the best essay "On the Comparative Merits of the Homœopathic and Rational Treatment of Disease," to be delivered to the Secretary, Herr Staatsrath Fuss, before the 27th of July, 1837.

The Boylston Society at Boston, have proposed the following prize questions for 1838 :—

1. What are the anatomical characters of Typhus, and what is the best mode of treating this disease ?

2. What are the causes, seat, and proper treatment of Erysipelatous Inflammation ? (Erythema Erysipelatosum of Good).

The dissertations are to be transmitted to the Secretary, George Hayward, on or before the first Wednesday in April, 1838.

The Royal Academy of Medicine at Paris have offered a prize of 2000 francs for the best essay on "The Physiological History of Menstruation, the Influence exercised by this Function on Diseases, and the Effect of Diseases on the Secretion." To be awarded in 1837.

The Portal prize of 600 francs is to be awarded in 1838, to the author of the best essay on "The History of the Discoveries relating to the venous System, from Morgagni to the present day, and on the influence which these discoveries have had upon the knowledge and treatment of diseases."

The Bernard prize of 1500 francs is to be awarded in 1838, to the author of the best essay on "The Influence of Physical and Moral Education in producing over-Excitement of the Nervous System, and the resulting Morbid Affections." The essays on the two last subjects to be transmitted to the Secretary before the 1st March, 1838.

At a meeting of the French Academy of Medicine, held on the 27th of January, 1836, a letter was read from the minister of public instruction, requesting the opinion of the Academy on the propriety of the government permitting the establishment of a homœopathic hospital and dispensary. MM. Herminier, Andral, and Lisfranc were selected as a committee to make a report on the subject proposed; the report was drawn up by M. Adelon. The Academy, on receiving it, decided that it was too reserved and temperate in its opinion of homœopathy, and determined on an answer to the minister, repelling it as a dangerous mode of treatment, and the offspring of quackery.

The Jacksonian prize of the London College of Surgeons. The subject for 1837 is "An Inquiry into the Nature of the Process of Suppuration and Ulceration." The dissertations to be delivered to the Secretary before Christmas Day, 1837.

The number of gentlemen who took the degree of Doctor of Medicine in the University of Edinburgh on the 1st of August, 1836, was 126. Of these, fifty were from Scotland, twenty-seven from England, three from Wales, twenty-seven from Ireland, and sixteen from the colonies or foreign countries.

The number of gentlemen who obtained diplomas from the College of Surgeons in Edinburgh, between the 31st of August, 1835, and the 1st of September, 1836, was 155, viz.: 103 from Scotland; 16 from England; 22 from Ireland; and 14 from the Colonies.

The number of gentlemen who obtained their diplomas from the College of Surgeons in London, from September 1835, to September 1836, is 463.

The number of gentlemen who obtained certificates from the Apothecaries' Hall of London, from the 3rd of October, 1835, to 29th September, 1836, is 450.

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PART I.
ORIGINAL COMMUNICATIONS.

ART. IX.—*An Essay on Wounds of the Heart.* By CATH-
CART LEES, A. B.

[Read before the Dublin Medico-Chirurgical Society.]

IN our various class-books of surgery, as also at our lectures, the subject of wounds of the heart is always fully entered into, but almost exclusively with reference to injuries of the lungs. There is however another viscus contained in this cavity, one which certainly plays no inferior part in the organization or continuation of human existence ; one of that system of organs which Bordeu has so expressively denominated as the tripod of life : and which, whether regarded merely anatomically as a beautiful specimen of complicated structure, well adapted to fill its office, as one of the most active and important agents of the animal economy, or considered more abstractedly as being subject to the most frequent physical and moral influences, I conceive that its lesions, though generally passed over in silence, yet possess the deepest interest in every point of view, physiological

and pathological ; and it is to this subject that I propose calling the attention of the Society to-night, I allude to wounds of the heart, that is, physical lesions of continuity of its structure, produced by the action of wounding instruments.

The opinion that all wounds of the heart are necessarily and instantaneously fatal, reigns generally among unprofessional persons ; but though it be quite true that they are among the most fatal of penetrating wounds of the thorax, constituting their most serious complication, and are, generally speaking, mortal, yet as there are recorded many well authenticated cases of individuals, who have survived, some for days, others for years, although presenting all the rational symptoms of a wound of this organ ; the examination of animals killed in the chase, and in the substance of whose hearts bullets and the heads of arrows have been found, with also the cicatrices of former wounds ; from all these circumstances I think we may infer, that wounds of all parts of the heart, provided they are not very extensive, are neither necessarily nor immediately fatal. And, in support of this opinion, I shall merely select a few out of the many cases that are recorded, and previous to detailing the cases, I may remark *en passant*, as a curious fact, that while British surgery affords us but few examples of these accidents, the continental records are pretty numerous : whether this is owing to our not publishing the cases, or that we are more circumspect in *les affaires de cœur* I cannot say.

Ambrose Parè states that he witnessed a case where a person after being wounded by a sword thrust in the chest, pursued his adversary for two hundred paces, and then fell dead ; on examination he found a wound in the heart large enough to receive his finger, and a large quantity of blood effused on the diaphragm.

Hennen, in his *Principles of Military Surgery*, quotes an highly interesting case of a soldier, who received a sword wound in the chest, and was left on an open staircase for five days, during severe winter time ; he lived ten days after being brought

to hospital, and died of gangrene of the legs, caused by the extreme cold to which he had been exposed; on dissection it was found that the right lung had been wounded, the right ventricle of the heart laid open, but this wound was perfectly cicatrized.

Dupuytren was decidedly of opinion, that these wounds were not necessarily fatal; and in his *Leçons Orales* he alludes particularly to the case of a soldier, in whom, six years after the healing of a wound of the chest, a musket ball was found impacted in the substance of the right ventricle of the heart near its apex.

He also gives the case of a man, thirty-four years of age, who was brought to the Hotel Dieu, May 5th, 1831, having received two stabs of a knife, one in the præcordial, the other in the epigastric region; there was no evidence that the wound had penetrated, as the heart's action and respiration were regular, the patient complained but slightly, and auscultation and percussion discovered no morbid phenomena. He had, however, a general spasmodic trembling. He died on the 13th with symptoms of diseased brain, having been affected with tetanic spasms for two or three days previous to his death; there was a wound of the pericardium of three lines, which also penetrated the cavity of the left ventricle, the pericardium contained 3i. of serosity, and Dupuytren thought he might have survived if the head affection had not supervened.

He also gives another case of a man who died mad, after attempting suicide by amputating the penis, and in whom six penetrating wounds of the right ventricle were found after death, although during life there were no symptoms indicative of such a lesion; now, were it not that both of these patients had died from disease of the brain, and that the morbid state of the cerebral functions, could thus account for the diminution of sensibility and perception, I should feel inclined to adduce them in favour of that proposition of Harvey, which has been denied by Mor-

gagni, viz. the insensibility of the heart : on which subject, I think that the following case bears very strongly. In the Museum at Martinique is preserved a heart, with the end of a sword five inches in length impacted in it. The case was that of an officer, who in a duel received a sword wound in the right side of the chest, the point of the weapon broke, and the seconds supposing it to have been lost in the grass, walked with him to the hospital, where he expressed so little uneasiness, that the surgeon, supposing it to be a mere flesh wound, allowed him to return on board his ship, where he continued without any suffering the whole of that day, but at night very severe symptoms supervened, and he died next day ; on examination, it was found that the point of the sword had passed through the right auricle, and wounded the left lung.

Mr. Carlile, Demonstrator of Anatomy at Trinity College, is of opinion that the heart is to a great degree insensible, as he mentioned to me that in his experiments on the motions and sounds of this viscus, he found that punctures of its substance affected its motions but slightly, and even on inserting tubes through its parietes into the cavities, though at first there was some slight palpitation, yet it soon accommodated itself to their presence ; but he found that if he compressed the nerves going to its substance, by passing a ligature round the aorta and pulmonary artery, much suffering was evinced.

In some cases, however, instant death follows the infliction of the wound, and this is an important consideration in a medico-legal point of view, as in the case quoted in Beck's Medical Jurisprudence, and which has been laid down also by Mr. Wallace in a clinical lecture on this subject, published in the *Lancet*.

Dr. Corrigan has kindly shown me a preparation in his possession, of a wound of the right ventricle which was followed by instant death : the case was that of a bailiff who was stabbed in the belly with a long knife, by a person standing upon the

stairs under him; the knife penetrated the diaphragm just below the seventh rib, entered the abdomen, re-entered the diaphragm, and perforated the right ventricle of the heart near the base.

To show the dreadful havoc that is sometimes caused by gunshot wounds of this organ, I shall briefly state the notes of two cases that I witnessed myself, during a period of time that I had the opportunity of dissecting the bodies at the Morgue in Paris, under M. Devergie, who is appointed by the French government to make a medico legal investigation of the bodies brought there. In one case, the third, fourth, fifth, and sixth ribs were fractured in several places, so that the left side of the chest was largely exposed; the pericardium was quite torn away, so that the heart protruded through the wound; there was a large lacerated wound at the base of the left ventricle, with extensive laceration of the aorta; two balls were fixed in the body of the eighth vertebra. This man had been found lying dead in his room with a musket beside him, so that it was presumed he had placed the muzzle of the piece against his heart, and discharged it with his foot.

In the other case the ball had fractured the sixth rib, passed through the left ventricle, lacerating it extensively, pierced the body of the sixth dorsal vertebra, and passed out through the back.

I think the best classification of wounds of the heart is into punctured and contused; the simplest form is that of acupuncture, the most serious is that which is complicated either with a copious hæmorrhage, or a foreign body remaining in the wound. Of the first of these complications, the late Duc de Berri (who was assassinated at Paris in the year 1820) afforded a remarkable example. He was stabbed in the right side, the right ventricle was pierced through, and the hæmorrhage into the cavity of the pleura was so considerable, as to oblige Dupuytren to open the wound every two hours while life lasted, in order to prevent impending suffocation; he lived in this state for seven hours.

The second complication may be caused, either by a fractured portion of a rib, or by a part of the weapon remaining in the wound. In the museum at Park-street, Mr. Thomas Hart had the kindness to show me a preparation of wound of the right auricle; and Mr. Wilkin, who was clinical resident in Stevens' Hospital at the time it occurred, has given me the particulars of the case. It was that of a brewer's man, who had fallen under a dray, when it was heavily laden, which passed over his chest; he was lifted up, and complained of pain and weakness, but was able to continue sitting on the side of the dray driving the horse for nearly an hour, when being in the vicinity of the hospital, he thought he might as well get himself examined: he walked in, and lay on a bed, but on turning on his side he suddenly expired. On dissection, it was found that the fifth rib was fractured, and that the extremity of one portion had penetrated the pericardium, and right auricle of the heart; it filled up the perforation of the pericardium, but had freed itself from the heart; and this, as Mr. Wilkin observes, accounts for the sudden death of the man. For it is probable, that the portion of rib had filled up the wound of the heart, and thus prevented any hæmorrhage until his arrival at the hospital; when, on its coming out, the sudden effusion of blood into the pericardium caused sudden death; there had no blood escaped outside the pericardium.

Mr. Robert Smith has given me notes of a case which is preserved in the museum of the Richmond Hospital. It is that of a woman who was jammed between a wall and a cart heavily laden, and died almost instantly; upon examination, several ribs were found to be fractured and driven into the substance of the lung, the pericardium was distended with blood, the superior vena cava having been torn almost completely across from the right auricle.

As to those cases, in which part of the weapon remains in the wound, Orfila quotes an interesting observation in his *Medicine Legale*, of a workman who, in a melancholic mood,

stabbed himself with a sharp stilet, between the fifth and sixth ribs of the left side, on the 24th of May. He was brought to hospital on the 26th, in a state of great collapse, the pulse small, intermitting, respiration hurried, great anxiety, and severe pain felt; on touching the wound, which was nearly cicatrized, but just below it, a peculiar thrill could be heard, or as it is expressively denominated a *crepitation onduleure*, similar to what can be heard in a varicose aneurism: the horizontal position caused great pain. On the 3rd of June he had severe rigors, followed by erysipelas of the face, and he died on the 13th, that is, twenty days after the receipt of the wound; on examination of the body, the pericardium was found to contain ten ounces of fetid bloody serum; in the inferior third of the right ventricle was impacted an iron stilet, which, penetrating the septum, could be felt in the left ventricle.

In contused wounds of the thorax, the heart, from its mobility, I should think, would be less likely to suffer injury than the other viscera of this cavity; but in the last siege of Antwerp by the French, some remarkable cases occurred in which this organ was severely contused, and ruptured without any external appearances of injury, either to the integuments or ribs, in which the death, in some cases instantaneous, was supposed to have been caused by the wind of the bullet. In some of the cases mentioned, a violent acute pneumonia supervened, in others death followed from an effusion of blood into the cavity of the pleura.

In some instances, although the tissue of the heart has not suffered any solution of continuity, yet the violent commotion which it has sustained has caused the suspension of its contractions, and a state of syncope so prolonged as occasionally to prove fatal, but not necessarily so.

A case of this description occurred while I was at Paris, and as I knew the parties concerned, and saw the patient shortly after his wound, I can vouch for its accuracy. Two French students quarrelled at supper, they wished to settle their dis-

pute on the spot, however as they were both very tipsy and infuriated we prevented them ; the next morning they met, and as they were determined that one should die, their friends prevailed on them only to load one of the pistols, and then leaving both on the table, to draw lots as to who should take the first chance of the pistols, of course being ignorant which was the loaded one ; it was loaded with four pellets. They then mutually felt for the point of the chest, against which at that moment each stroke of the heart told with increased violence, and pressing firmly against this part, they fired : one of them fell to the ground in a state of insensibility, but on examining him they found merely a slight flesh wound at the part to which the pistol had been applied, and with a little care he soon came to himself. I saw him about three hours after this had occurred. He was then in a state of great anxiety which he could not account for, as he expressed more an unpleasant sensation of weight about his heart than actual pain ; there was great tendency to fainting, the pulse intermitted, with severe palpitation of the heart : under proper treatment all these symptoms subsided, and he recovered perfectly in a short time. I consider myself peculiarly fortunate in having witnessed this case, for in affairs of this kind it is generally the right side which is wounded, owing to the position we naturally assume ; and also, it exemplifies in a striking manner the power of compressed air in resisting the expansive force of gases.

All parts of the heart are not equally liable to be wounded, for in a series of fifty-four cases collected by M. Olivier, the right ventricle was the seat of the wound in twenty-nine, the left ventricle in twelve, both ventricles in nine, the right auricle in three, the left in one. The same author states, that out of twenty-nine cases of penetrating wounds of the cavities of the heart, only two proved fatal within forty-eight hours ; in the others death took place at the varying periods of from four to twenty-eight days after the receipt of the wound.

These differences in the time at which death has occurred

in individuals whose wounds have presented nearly the same appearances, as also why they are not immediately fatal, have been attributed to the peculiar disposition of the muscular fibres of this organ; for as the heart is constituted of layers of superposed fibres having different directions, if the instrument has divided a great number of its fibres in a transverse direction, the retraction will be considerable, and the probability of hæmorrhage much greater than if the wound ran parallel to these fibres; thus suppose the left ventricle to be wounded, there are three layers of fibres in its substance, the superficial and middle layer take one course, the deep layer takes an opposite direction, so that while one set of fibres are divided transversely, the others are merely separated longitudinally, and thus favour the formation of a coagulum, causing an obstruction to further effusion; at first merely temporary, but finally definitively; so that we may assume, that wounds which are parallel to the axis of the heart, are *cæteris paribus*, less rapidly fatal than those which are transverse; and it is this action of the fibres which renders wounds of the ventricles less rapidly fatal than those of the auricles.

From a careful review of the facts which I have enumerated, I think we may infer that these wounds, though very dangerous, are neither necessarily nor immediately fatal; but in making our prognosis, we must bear in mind the depth to which the instrument has penetrated, the direction of the wound with regard to its fibres and extent, the form of the instrument, and whether it has remained in the wound or not, as all these circumstances materially affect the patient's chance of recovery; as on them depends the state of the wound as to whether it shall remain open or not; for if the wound divide many fibres transversely the retraction will be considerably greater, and the danger of effusion increased.

Now as to the immediate cause of death, some consider that the suddenness of death in cases of wounds of this organ is owing to the hæmorrhage draining as it were too suddenly the fountain of life, while Morgagni, Cruvelhier and others ascribe

it to the compression which the heart experiences from the blood effused into the pericardium ; from the unyielding nature of this membrane preventing its action. This latter opinion, I think, is greatly strengthened by the fact, that in cases of spontaneous rupture of the heart, where the effusion is confined to the cavity of the pericardium, the death is instantaneous, though the amount of the effusion be but inconsiderable ; also in cases of effusion resulting in acute pericarditis, syncope is of very frequent occurrence. In fact, syncope which, if prolonged, would terminate in death, seems (in one class of cases at least) to result from any encroachment on the narrow boundaries of the central organ of circulation, whether the intruder be of a solid, fluid, or gaseous nature ; thus we find that individuals after any great exertion, and in whom there seems to exist a temporary congestion toward the heart and lungs, are very prone to fainting fits ; also in dilatation of the aorta neighbouring the heart, in that state of false plethora also which results from exposure to great heat, as we experience in a warm bath or heated room, and which is supposed by many to be owing to a state of rarefaction of the constituent particles of our frame : in all those cases do we find a great tendency to syncope. And lastly, in those alarming cases in which death ensues so rapidly from the introduction of air into the veins, I have myself witnessed, when attending Majendie's experiments at Paris, the animal to drop dead as if struck by lightning ; dissection shewed us the heart enormously distended with air, so as to entirely fill the pericardium. This is a highly interesting fact in pathology, as showing how a common effect may be produced on an organ by two causes diametrically opposed to each other ; that is, sudden death produced by compression of the heart in one case, and by its dilatation in the other.*

As to the curative means to be employed in cases of wounds

* Dr. William Stokes of the Meath Hospital, whose accuracy in pathological investigation entitles any remark of his to deep consideration, is of opinion, that the

of the heart, they are reducible to the general treatment of those in other parts. However, the state of repose in which the body is placed after the receipt of a wound of this description, must exert considerable influence with regard to the formation of a coagulum ; but particularly the state of the mind demands our most anxious attention, for we know that Hewson, in his experiments on the properties of the blood, found that a state of terror rendered this fluid much more coagulable than otherwise. Now whether this may be owing merely to a state of immobility and a partially suspended action of the vessels, so often the first effect of terror ; or whether it may depend on some more inexplicable, yet no less intimate connexion between the state of the mind and that of the circulatory fluid I know not, but when we reflect on the powerful influence that mental emotion exercises over the action of the heart, so strong as in some instances to have caused death from a sudden burst of passion or of joy ; when we can trace functional derangement of this viscus marching step by step, and increasing according as the nervous system is subjected to the frequent and ardent operation of the varied emotions which swell our hearts ; when we consider the state in which we find the blood in those cases where death has ensued from some violent shock sustained by the nervous system, whether physically or morally, we find ourselves involved as it were in a circle without beginning or end ; we encounter a reciprocity of physical and moral agents involving the intricate but mutual dependencies and connexion of mind and matter. Their union and separation are mysterious—Nature cannot ex-

difference in the time of death may arise from a difference in the distensibility of different pericardia.

This is contrary to the opinion of Cruveilhier, who states as the result of a great many experiments, that the space between the heart and pericardium is only equal to the size of this viscus at its fullest state of distention.

Dr. Stokes ingeniously suggests, that if we could meet with a case of wound of the heart where there was no pericardium, or where it had been obliterated by previous inflammation, it would help materially to solve this difficulty.

plain them, and we must leave the solution of this problem in his hands from whom came the first impulse of the heart, and at whose mighty fiat it shall cease to beat.

ART. X.—*An Inquiry into the Management of the first Stage of Labour.* By EDWARD WM. MURPHY, A. M. M. D., late Assistant Physician Dublin Lying-in-Hospital.

“No person in labour ever had a pain depending on her labour which was in vain.”—DENMAN, *Introduction*, p. 171.

IN offering some observations on the management of the uterus during the expulsion of its contents, so as to avoid those disagreeable contingencies which sometimes are found to arise, I am liable to the charge of entering upon a beaten path where nothing new is to be discovered, one in which writers have over and over again pointed out every thing interesting or necessary to know upon the subject; and were it not that they have differed, and sometimes very widely, in their statements, that rules apparently the most settled have been questioned and their accuracy denied; that directions, the result of acknowledged experience, have been set aside by authorities equally respectable, and the practitioner often left to the natural strength of his judgment, if not to chance, for his success; it would be but an idle and gratuitous office to recapitulate what has been so often detailed before. The collective experience of all who have had the opportunity of putting the knowledge acquired from books fairly to the test of experiment and deductions derived from facts and not from doctrines, are perhaps the only reasonable means of ascertaining truth. It is with such an object that this inquiry has been undertaken, in the hope that some additional light may be thrown upon disputed points, some clue be found to escape from the labyrinth of conflicting opinions.

Simple as the natural progress of parturition may appear, there is scarcely a step of it, from the dilatation of the os tincæ

to the expulsion of the placenta, that has not given rise to a difference of treatment, founded upon opposite views of the powers of nature in accomplishing her purposes. Some, contented patiently to observe, if not to admire, those gradual and often tardy transitions through which the stages of labour pass, shrink from any interference which might derange the order or interrupt the harmony of her operations, fully satisfied, that where no untoward obstacle presents itself, nature will effect her object *in the time*, and according to the manner, that will conduce most certainly to the safety of the patient. Others, alarmed by the mischiefs arising from inexcusable neglect, and judging (perhaps too confidently) from their own experience and success, are unwilling to trust so much to the powers of the constitution, and fearing to expose the patient to any unnecessary suffering, they seek anxiously for such means as art will point out to relieve and abbreviate the severities of labour; hence, they gladly avail themselves of all such resources, and adopt a mode of treatment which would be considered by their opponents as little better than mischievous meddling. In those labours in which there is either none, or but a slight disproportion between the head and the passage through which it must pass, in which there is sufficient room for a favourable delivery, and yet the labour is prolonged beyond the average period; the discrepancy of authorities is apparent, and the embarrassment of the practitioner consequently increased, at a time, which most of all, calls for firmness and decision of conduct. Examine, for instance, the first stage of labour, (and to that I shall at present confine these remarks,) the dilatation of the os uteri, the use of the membranes, or their management so as to secure its favourable completion, and we are rather puzzled than assisted by writers.

Denman,* (whose authority is beyond dispute,) speaking of dilatation of the os tincæ, says, “whether a short or a *long time* be required for this purpose, it is the duty of the practitioner

* Denman, Ed. 1824, p. 176.

to abstain from interfering in this part of the process. *All artificial assistance* contributes to retard the event so impatiently expected, by changing the nature of the irritation and the action depending thereon; or does mischief by inflaming the parts and rendering them less disposed to dilate.* Merriman states, that "the dilatation of the soft parts will be effected by the natural pains, assisted by the bag of waters gradually insinuating itself through the os uteri and vagina more easily and more safely than by any artificial means he can employ, of course no attempt ought to be made by him to procure *artificial dilatation*."† And again, in speaking of a rigid and undilatable state of the os uteri, he remarks, that "in labours of this kind our great resource is *to allow time*; the grinding pains will frequently last for twelve, eighteen, twenty-four, and thirty-six hours; while these continue, speak of them as only preparatory, not as real pains of labour."

We find Burns‡ adopting a different doctrine. He observes, "in the case I have just quoted, I have spoken of the effects of *dilating* the os uteri, but I do not mean to say that the practice is useful in such an one alone, for in *most cases of tedious labour* it is beneficial; and as the subject is important I shall explain my sentiments on it. Forcible and irritating dilatation of the os uteri, even when it is not productive of dangerous consequences, is apt to occasion irregular and spasmodic action of the uterus. Two circumstances are necessary to render it safe, the os uteri ought to be already very considerably opened, its edges must be lax, dilatable, and generally speaking thin, and the dilatation must be gradually and gently effected

* "La dilation de l'orifice se fait plus lentement, et plus douloureusement chez les femmes sanguines ou nerveuses, il faut bien se garder dans ce cas *comme dans tout autre* d'aider à la dilatation avec les doigts. Cette manœuvre pratiquée par l'ignorance irrite et inflamme l'orifice, et prolonge au lieu d'abréger du travail."

—BOIVIN, *Art. des Acc.* p. 214.

† Merriman on Dif. Part. p. 17-27.

‡ Burns' Midwifery, p. 411.

during the continuance of a natural pain." After giving directions as to the mode of effecting it, he goes on to argue against objections. "Let not the principle suffer from its abuse, else what plan could stand its ground? It is perfectly clear that when the process is going on well, interference is improper; but it is not the less evident, that if a long time is to be spent in accomplishing the first stage, the vigour of the uterus may be impaired so much as to render the subsequent stage dangerously tedious, or to prevent its completion, at least consistently with safety. The first stage of labour ought to be always accomplished within a certain time, varying somewhat according to the constitution of the patient and the degree of pain. If the pains be continuing without suspension, or an interval of some hours, and the labour be going on all the time but slowly, it is a good general rule to effect the dilatation of the os uteri within *ten or twelve hours* at the farthest from the commencement of regular labour." The quotation has been given sufficiently at length to avoid making any misstatement. It might, perhaps, in passing, be observed, that when the os uteri is very considerably opened, its edges lax, dilatable, and thin, that the process is going on well; though it may take somewhat more than ten or twelve hours to be completed. It is sufficient here to show a very essential difference of treatment in a most material point of practice, between writers, who are generally, considered as standard authorities. The validity of the rule shall be considered hereafter.

Again, as to the use of the membranes and their management, a similar contrariety will be met with. Denman* lays it down as a general rule, that the membranes should never be ruptured artificially; at least, before the os uteri is fully dilated, and be persuaded that it is afterwards unnecessary, unless there should be some cause more important than mere delay of labour.

Burns† states, "that the membranes should be allowed to

* Denman's Introduction, Ed. 1824, p. 177.

† Burns' Midwifery, Ed. 1832, p. 365.

burst by the efforts of the uterus alone ;” but, “ that it may be allowed (to rupture them) when the os uteri is fully dilated, and the membranes protruded even out of vagina ;”—“ even if the membranes be not considerably protruded, yet if the os uteri be completely dilated, no injury can arise from rupturing them.” But, though the practice be not detrimental, it does not thence follow that it is always expedient, and it will be a useful rule to adhere to, that the seldomer we interfere in this respect in natural labour, the more prudent shall our conduct be.” Blundell* observes, “ that to burst the membranes by the fingers instead of waiting for spontaneous rupture, is faulty. That, as a general rule you should commit the rupture of the membranes to nature, and in nineteen out of twenty cases they will yield, and the delivery do well.” Others might be quoted to the same purpose. In opposition to these, we find Dewees.† He can see no injury from rupturing them, but directs, “ should the pains be efficient, and the os uteri well dilated, or *even easily dilatable*, and the membranes entire, let them be ruptured by the pressure of the finger against them, or by cutting them with the nail of the introduced finger.” If we follow the progress of a labour, we shall find other debateable points in the varieties of natural presentations ; some thinking it of the utmost consequence to change the fronto-cotyloid round to the occipito-cotyloid presentation, which others think quite unnecessary ; that in many cases it is by no means easily accomplished, and even when it is so, fear lest a descent of the funis may be the only recompense for their skill. Lastly, with regard to the expulsion of the child, the use of the abdominal bandage, and the management of the placenta, we have abundant materials for a prolonged discussion, and sufficient discrepancy to perplex in no small degree the inquirer anxiously seeking for lights to guide him through his difficulties.

Without attempting (which indeed would be hopeless,) to reconcile these differences, or to account for the opposite ex-

* Blundell, *Obstetricy*, p. 233. † Dewee's *Midwifery*, Ed. 1825, p. 189.

perience of men, who, from their industry, abilities, and extensive opportunities, are deservedly looked upon as authorities, there is sufficient to justify a further inquiry into the subject; to test opinion by observation, and if possible, to find the principle which should direct us in determining the value of aphorisms, which it could be wished were less contradictory.

These last questions may (if opportunity offer) form the subject of future inquiries; our remarks, at present, are directed to an examination of the first stage of labour, and the principles which should guide us in its management.

With this object, it will be necessary to examine the mode in which the uterus acts in parturition, for it is clear that different views on this point would alone create opposition in the directions given for its management, and to use the language of Sir C. Bell, "if it be possible to place this matter in a clear light, it may banish perhaps a certain *vagueness*, which is much to be regretted in so important a department of practice." The proper structure of the gravid uterus has been merely glanced at by some writers as a confused mass of fibre, in which it is impossible to find any distinct arrangement; others again have classed them, according to their direction, into longitudinal and circular. But we are indebted to Madame Boivin for a more accurate description of it, and of the several layers of which it consists. Without entering into these details minutely, it will be sufficient for our present purpose, to mention the leading arrangement of the external and internal layers at the period of parturition.

The anterior and posterior layers and the transverse layers of the fundus all combine in forming two broad fan-shaped muscles, converging their fibres towards the round ligaments to which Sir C. Bell assigns the office of tendons; to the posterior ligaments, whose effect may be similar: and also to the ligaments of the ovaries and to the fallopian tubes. The longitudinal fibres of the anterior and posterior surfaces which are described, and which before this period may be found descending from the fundus to the os tincæ, diverge to either side as

the uterus increases in size, and thus become lateral muscles at the full period, having the round and posterior ligaments as the fixed points of their action. On the internal surface of the uterus will be found a very distinct concentric arrangement of the fibres, of which the openings of the fallopian tubes are the centres; round these points the fibres are distributed in successively increasing circles until they intersect each other, and from thence successive decussations give the appearance of a distinct circular muscle at the fundus, described by Ruysch as the “*detrusor placentaë*.” At the inferior part they gradually assume the direction of the circular fibres, which may be traced surrounding the uterus, and are gradually lost as they descend towards the *os tincae*. The fibrous layers between these internal and external coats have been described by Madame Boivin with much accuracy; it requires no ordinary skill to discover their arrangement, but they evidently assist by acting in the same direction.

The uterus has thus a clear provision for the expulsion of its contents, the external layer draws the uterus towards the brim of the pelvis, and maintains the fundus in the direction of its axis; the internal, by a compound action, is capable of exerting a powerful force on the *os tincae*. The fibrous structure surrounding the fallopian tubes act, as two large circular muscles, each by a motion of gyration having a tendency to draw the *cornua uteri* (I use the expression merely from analogy) obliquely towards the axis, or in a line forming with the axis an angle more or less acute; their combined action is, therefore, in the direction of the diagonal, (the axis,) and thus, while the whole fundus is diminished in every part of its extent, the direction of the force is the same as would be effected by the longitudinal fibres acting parallel to the axis of the uterus; by this arrangement the whole power of the fundus is concentrated on one point, the centre of the *os tincae*.

The resistance offered to this power during parturition, has been attributed to the circular fibres of the neck; and the manner in which it is overcome is described as owing to the

superiority of the longitudinal fibres in force ; that the longitudinal act alternately with the circular, the former increasing the breadth and diminishing the length, while the latter produces the opposite effect, until at length they are overcome, and their yielding causes the dilatation of the os uteri.*

In order to appreciate these explanations, it will be necessary to say a few words on the nature of uterine structure : more especially, because in all discussions upon it, the disposition to generalize, so common in all natural subjects, has given rise to a want of precision, if not error in speaking of it. Finding it

* During the whole period of gestation, the lower part of the womb is kept closed by the contractile power of the circular fibres ; the effect of these fibres must now be overcome by the influence of the longitudinal ; therefore, these two sets of fibres may, without a strained comparison, be considered as antagonizing powers. " From the moment the neck begins to be operated upon, it begins to lose in thickness and in length ; and both these changes commence at that part next to the body of the uterus, so that the extremity of the neck, or os tincæ, is the portion which is effaced. When the longitudinal fibres act, the circular ones become a little stretched, in consequence of the length of the uterus being diminished ; (and, we have said, that the uterus cannot diminish in one direction, without increasing in another, while the membranes remain entire ;) and this must be the case, so long as the mouth of the uterus remains shut, which it cannot very long do, as it is obliged to sustain the whole pressure of the contents of the body and fundus ; and this, in proportion to the power with which the longitudinal fibres may contract, as well as the force exerted by a part of the circular fibres which are called into action, by the contraction of the longitudinal distending them, until, they themselves contract from this very stimulus."—" The effect of this compound action (of the longitudinal and circular together) is, to direct the body to be moved towards that part of the organ which offers the least resistance ; and this is the small opening called the os uteri ; the fibres which immediately surround this opening, and oppose its immediate dilatation, gradually become weakened by the superior strength and persevering action of the longitudinal fibres ; and, after a struggle of greater or less severity and duration, are obliged to yield, and in their quiescence the dilatation of the os uteri consists."—DEWEES' *Midwifery*, 1825, p. 180-181.

" Les fibres en cercle de la moitié inferieure de l'uterus se trouvent seules pour resister a l'effort de tous les fibres longitudinales, et des fibres circulaires de sa moitié superieure."—*Art des Acc.* VELPEAU, vol. i. p. 446.

to possess the essential characters of muscle, viz. obedience to stimuli, fibrine, alternating periods of action and repose, &c., we are disposed to neglect properties peculiar to itself, or at least which it has in common with structures, not considered muscular. Hence, the dilatation of the os tincæ is described as a process entirely muscular, strictly analogous to the sphincters of the different hollow organs. Many difficulties present themselves to such an explanation. It assumes that the support given during pregnancy to the superincumbent weight of the contents of the uterus being caused by the resistance of the circular fibres of the neck, they of course must be in a state of constant contraction, until overcome by the superior power of the muscles of the fundus; thus, making them endure a continued state of tension without any evidence or sensation of fatigue.

The analogy of the hollow viscera is not strictly accurate. The sphincters do not dilate in the slow, gradual manner which is observed in the os tincæ, nor is their yielding consequent on a kind of victory of the stronger over the weaker muscles of the organ. The former keep the substance which is to be passed constantly applied to the sphincter which, acting as a stimulus, first causes its contraction, but subsequently its complete dilatation. Where this does not take place, and that the sphincter maintains its resistance, the distress sometimes becomes great, and, so far from entering into a contest with the sphincter, the muscles of the organ often suspend their action entirely. The force necessary to overcome the resistance of the circular fibres must be very great, if we suppose them to offer resistance; (and, if otherwise, there would be an immediate dilatation,) so great, as to make it improbable to suppose the membranes capable of resisting the immense power which the combined action of all the fibres must exert, when thus acting in opposition to each other; yet, it constantly occurs, that the membranes are unbroken during the whole process, nay, that they remain entire during the dilatation of the os tincæ, and yet are so thin,

that the mere accident of sitting upright, or the attempt to walk, will rupture them, from the pressure of the superincumbent weight of their contents. Problematical as the cause of uterine pain is, our difficulties are not diminished by attributing it to a series of muscular contractions; a property, which, in no way, belongs to muscular action in any other part of the body; and it is not easy to understand why it should have its seat peculiarly in the uterus, if the structure be exactly the same. If these objections, founded upon the assumption, that the dilatation of the os tinæ is purely a muscular effect, be just, we have to seek for some other property beyond what is found in muscle generally, or some other tissue in that structure, usually called muscular, which will explain these peculiarities. Such a structure has been mentioned, even detailed with accuracy,* and yet but slight attention given to its effects. I allude to that highly condensed cellular tissue, which, like similar tissues in other parts of the body, (ligamenta subflava, middle coats of arteries, &c.,) possesses a high degree of elasticity, is always found to contain fibrine, and is the occasional seat of muscular fibre. This structure forms the nidus of the fibrous tissue of the uterus, pervades every part of it, and must, of necessity, exert an important influence over its action; if then, while we admit the muscularity of the uterus, we bear in mind, that it possesses the additional property of elasticity in the highest degree, such difficulties will be in a great degree removed. In place, then,

* “ Tout prouve le tissu cellulo-fibreux, elastique et jaunâtre qui forme la base des ligamens interlaminaires, et inter-epineux des vertebres forme aussi la trame d’une foule d’autres. Nulle part il n’est plus abondant que dans l’uterus or il semble que cet element tienne le milieu, serve en quelque sorte de passage entre les systemes cellulaire et musculaux, les chimistes y’ont trouve de la fibrine et j’ai vu tantot un des ses points, tantot un autre sur differens cadavres transforme en veritable tissu contractile.—Toutes ces couches (muscleuses de l’uterus) ont pour base le tissu cellulo-fibreux, jaune surchargé de fibrine le tissu charnu se developpe dans cette trame primitive comme dans les intestines.”—VELPEAU, *Traite des Accouchemens*, vol. i. p. 81-84.

of attributing the support which the contents of the womb receives, during pregnancy, from the neck and os tinæ, as well as the mode in which the dilatation of the os tinæ is effected, to a process purely muscular ; it would appear more reasonable to refer the former to the combined effect of the muscular and elastic tissues, mutually aiding each other ; the muscular opposing the effects of a pressure constantly varying and unequal ; the elastic, by its tension, presenting a uniform resistance to the contents above, until the increasing size and weight gradually unfolds these parts.

The dilatation of the latter, in place of being the result of a struggle between different sets of muscles, may be attributed solely to the action of the muscles of the fundus overcoming the diminishing tension of this tissue, (the circular fibres being quite passive,) not by any violent exercise of power, but with most moderate force ; the membranes thus becoming a useful mechanical agent. If we might hazard a conjecture, we would suppose the pain to arise, not from the contraction of the muscular fibres, but, rather from the comparatively sudden distention of this tissue, similar to what occurs subsequently, when the head acts upon the ligaments of the pelvis.* Every experienced practitioner is aware of the contractions and relaxations which take place in the uterus before labour commences, without producing any pain ; the tension of the neck and os tinæ being but slightly increased. We know, also, that in the lower classes of animals, where the uterus is entirely muscular, no pain is experienced. No doubt, to this, as to every other attempt at explanation, objections will present themselves. It may be asked, whence arise the pains which occur after the uterus is emptied of its

* “ Mais depuis que cet ouvrage a vu le jour pour le premier fois nous avons rencontré plusieurs auteurs qui comme nous pensent que le siege de la douleur est dans les orifices, et dans la col de l'uterus, et non dans le corps de ce viscera, dont la contraction n'est pas plus douloureuse que celle des muscles de l'abdomen de la vessie et du rectum.”—BOIVIN, *L'Art des Accouchemens*, p. 172.

contents? or during the expulsion of the placenta, when frequently the patient will hardly bear the fundus to be touched? But, here we would presume, that when the uterus has expelled the child, the elastic tissue resumes that state of contraction which continues until the uterus regains its original dimensions; any cause which counteracts this, will cause pain from distention, by which, the muscles are again excited to expel the offending substance; which, in overcoming the contraction of the neck, gives rise to pain: we are aware, that when the placenta fails in being thus expelled, how long the contraction of the neck will continue without causing the slightest pain, until some attempt is made to overcome it by force. Dewees, after giving his description of the mode in which the uterus is opened, as has been quoted, altogether objects to its being considered a mechanical effect. "He can see no necessity for the mechanical agency of the membranes acting on the circle of the os uteri like a wedge; for, every day's experience proves, that the most speedy relaxation of the mouth of the uterus takes place without any such influence. Let any one be asked, who has made the attempt to penetrate the uterus, while the os uteri is *rigid*, whether a direct action on its edges by the hand formed into a wedge-like shape, and the application of a force of no mean power, will always be sufficient to overcome the opposition of the circular fibres of the neck. He will answer, if he be candid, No. It is reasonable then, that a wedge formed by the smooth and comparatively delicate membranes, with the liquor amnii enclosed within them, shall, as a mere mechanical power, however aided by a strongly contracting body and fundus, achieve more than the well-directed effort of the hand as just stated." * To the latter objection, it may be at once replied, that the resistance offered by a rigid os tincæ to such a rough illustration of the membranes, as "the hand formed into a wedge-like shape," is no proof at all of the kind and degree of resistance,

* Dewees, p. 181-183.

which the os tincæ may present to their smooth and unirritating surface ; as well might we argue, that the spasms caused in the muscles of a dislocated limb, or what is more to the purpose, that caused by the introduction of the hand into the uterus, is a measure of its ordinary muscular contraction, or of the power requisite to effect its relaxation, as to say that because the os tincæ resists the forcible dilatation of the hand, it opposes a similar resistance to the soft, unirritating, and uniform pressure of the fluids enclosed within the membranes. It would rather prove how injudicious it would be to substitute for them, the unyielding head of the child, which, by its irritation may call into action a new resistance, and retard the event which it was intended to hasten. That, in many cases, the os tincæ relaxes speedily after the rupture of the membranes, is undoubtedly true ; but never, I think, when the os tincæ is rigid ; it is always when the os tincæ is already tolerably dilated, and its edges are soft, thin, and very yielding. There is no difficulty in understanding why, when the elastic force of the neck having been greatly diminished by distention, while the new irritation excites, and the lessened size increases, the power of the fundus, that such an effect should follow ; in fact, that does not take place, can only arise from the new stimulus, exciting the contractions of the circular fibres of the neck, and thereby resisting those of the upper portion of the uterus ; a result, which, when it occurs, soon changes the dilatable into the rigid os tincæ, causing no small disappointment to the attendant, and perhaps, presenting a useful illustration of Dr. Burns' remark, " that the seldomer we interfere in this respect, the more prudent shall our conduct be." Another objection may be suggested by those cases of almost instantaneous delivery, in which the sudden opening of the mouth of the womb appears much more like the relaxation of a muscle, than the yielding of an elastic structure. But here the exception rather proves the rule, because, if such were the explanation of the phenomena, why should it not occur more generally ; there are numerous cases in which there is no other

obstacle to a quick delivery, than the time which the os tincæ and perinæum take to dilate ; and, in the few cases where the former yields suddenly, we find the latter does so too ; and the relaxation of the perinæum has never been considered a muscular process.

If, then, the nature of uterine structure be considered, consisting of muscular and fibro-elastic tissues ; if their properties be borne in mind, and that we contrast the action of sphincter muscles generally with the manner in which the os tincæ is opened, by a slow, painful dilatation, aided by a fluid pressure ; and again, compare it with the subsequent dilatation of the perinæum ; the dilatation of the os tincæ must be considered to be, in a great degree, a mechanical effect ; that the resistance arises from the reaction of the fibro-elastic tissue, and not from the contractions of muscular fibre ; nevertheless, that irritation may excite their action, and thus present an impediment to the natural action of the uterus, retarding dilatation, and consequently, that to avoid such an effect, it is essential to avoid rupturing the membranes.

If the above remarks on the structure and action of the uterus prove the necessity of preserving the membranes, in order to secure the os uteri during its dilatation from the irritation of the head, it would seem to need no further argument to decide what the effect of artificially dilating it would be. As, however, this doctrine is maintained by men, whose abilities are acknowledged, and whose experience must be extensive, it will require a separate consideration ; and, to avoid ambiguity, it will be useful to detail briefly some of the leading differences observed during the dilatation of the os tincæ. In the most favourable example of a dilating uterus, we find an abundant mucous discharge in the vagina, peculiarly adapted for obviating the effects of friction ; and the os tincæ itself thick, swollen, soft, and unaccompanied by any tenderness, but sometimes very thin and yielding ; in either case, the characters of the os uteri are soon lost, and there remains a simple orifice, its edges soft,

and easily stretched, not unlike 'moist glove-leather : the opening thus becoming alternately tense and flaccid, goes on increasing in size, and somewhat in thickness, until it is completely dilated. In the whole of this process, the uterus does not appear to exert any very powerful effort. Let any one, for instance, press his fingers against the membranes during a pain ; or let the experienced accoucheur call to mind those cases in which he wished to rupture them, and he will acknowledge the facility with which they yield without breaking. It was this fact which appeared to have led Dewees to consider the membranes useless as a means of dilatation. He asks, " Let any one familiar with the manner in which the distended membranes present themselves generally, during a pain at the orifice of the uterus, be asked if their presence and agency, at such a moment, presents to his mind the idea of a mechanical power attempting to overcome a resistance offered by the contractions of the circular fibres ? and we are sure he would unhesitating say No." And such, assuredly, must be the answer, if we suppose the uterus exerting a power sufficient " to overcome the resistance offered by the contractions of the circular fibres." But we would say, that as the uterus has no such opposition to resist, it employs a power just adequate to distend the elastic tissue, and no more. That such is the case, any one may satisfy himself. Let him try the experiment just mentioned upon a bladder filled with air or water, sufficiently to communicate to the fingers the alternate pressure and relaxation of the hand, and he will find it impossible to press it back, if grasped with any great degree of strength. Or if this should appear to be too coarse an illustration, let him try, in the interval of a pain, to what degree he can artificially dilate the os uteri, and compare it with what the uterus effects naturally, and he will hardly fail in coming to the conclusion, that if much power were used, the dilatation would be much more rapid than it appears to be.

Previous, then, to the breaking of the membranes, the uterus seems to avoid every thing which has the most remote ten-

dency to force or violence. But if by any accident they should be ruptured prematurely, one of two results may happen, depending on the state of the os uteri at the time : if very thin or soft, the chances are, that the increased action of the uterus will overcome it rapidly : the opposite, however, may arise, and an unexpected resistance be found, which will change the characters of the orifice altogether. But if, on the other hand, it be thick and firm, though still quite dilatable, its dilatation is generally retarded, and it assumes the characters of rigidity. The simplest deviation from the most favourable condition is where, from the position of the os tinæ being too much towards the sacrum, (which is generally the case in obliquity of the uterus,) the anterior part of it and the neck becomes distended to that degree, as to render it as thin as paper, so that it may be found presenting, very like the membranes themselves, a deception which the fold at the junction of the neck and os tinæ, by resembling a thick dilated os uteri, is calculated to increase : if, however, the finger be passed carefully over the posterior surface, the orifice will be found often not larger than a sixpence. In these cases the dilatation is usually very rapid. After having made such an examination, I have been surprised to find in how short a time the dilatation is completed. Sometimes, however, it continues of the average thickness, and the time which the first stage takes for its accomplishment is proportionably increased ; but if the head should descend too much on the pubis, the anterior lip may be compressed, and its dilatation retarded while the rest is completed, thus forming a band before the head. A very few cases of this variety presented themselves to me ; but it has been often observed by Dr. Hamilton. The management which he recommends, that of “ making counter-pressure against the edges of the os tinæ every pain, till it be fully dilated,” is nearly the same as that which has been adopted, only that it was directed rather with a view of resisting the descent of the head than of dilating the os tinæ. Again, it may occur, that in consequence of the plane of the brim look-

ing too much forwards, though the general measurement of the pelvis be sufficiently ample, yet the head will be projected on the pubis, and it becomes, if the membranes are entire, very difficult to feel it at all; it would seem as if nothing presented but the bag of waters pressing through the os uteri: but after they are ruptured, if the os uteri be fully dilated, or that the accident just mentioned should not occur, the labour generally proceeds as usual.

Another, and very important deviation, is when the fibro-elastic tissue is strong, but not unyielding, the os tincæ gives way slowly, as it were, unwillingly, to the action of the uterus. It may take a considerable time before the dilatation is completed; and as it naturally becomes a source of anxiety to the attendant how he should act, (no doubt having a dislike to be an idle spectator of much suffering, if it could be avoided,) it will be necessary to consider its management a little more particularly. Here, also, the action of the uterus seems to shun violence. After its action has been continued for some time, it will gradually cease; the pains become weaker, and are for a time suspended. During this interval, the patient either gets a refreshing sleep, and awakes to a renewal of strong and regular pains, or, if of an hysteric temperament, will be teased with slight spasms, causing much restlessness, (it is in these circumstances that opium appears to act most beneficially.) When the labour is renewed, there may be a second suspension for a shorter time, and then the pains continue until the dilatation is completed.

The character of the pains varies very much during the whole of this process, sometimes strong and effective, and again weak, and apparently producing but little influence on the os tincæ. The patient generally gets the credit of having useless labour: a very fatal error, if it lead to the use of artificial means to make it expulsive. While the membranes remain unbroken, no disturbance generally arises beyond fatigue; but as soon as the waters are discharged, and that the head presses upon the os tincæ, a new train of symptoms may shew themselves, which, if

neglected, often converts this condition of the os uteri into that which is much more dangerous and unmanageable, viz., the truly rigid os uteri.

The os tincæ bears irritation very badly, and if much exposed to it, will certainly manifest a species of sub-inflammation, which at first retards its distention, and if suffered to increase, will soon affect the general system. That such is the case, is a conclusion which daily observation, during my residence at the Lying-in Hospital, has, I might say, forced upon me. The natural anxiety of those who were in attendance upon the patients, and their desire to watch the progress of parturition, gave rise to frequent examinations per vaginam. The effect of such irritation in the kind of case described, has been to excite this tendency, manifested by a suppression of the usual mucous discharge, by heat and tenderness, and a tumid, painful, unyielding condition of the os tincæ: in such cases, then, especial caution was necessary to prevent such frequent examinations being made. We can readily judge, then, that the long continued irritation of the head would produce a nearly similar effect. Patients have been sent into the hospital where these symptoms were unnoticed and suffered to proceed. The tenderness and swelling were increased; a serous irritating discharge was in the vagina; the os uteri perfectly rigid; and the muscular action, both of the uterus and bladder, suspended; urine accumulated in the one, and in the other the true pains were changed for distressing spasms. Thus, a case in which there was no real difficulty, was converted into one of considerable risk.

In this state of the os uteri, great attention is necessary to counteract the effects of this inflammation. The treatment has been pointed out by writers under the head of "rigidity;" but the different plans suggested, viz. bleeding, enemata, hip-baths, &c. &c. seem to me to be described rather as specifics to relax a rigid os uteri than as antiphlogistics, which by controlling this tendency towards inflammation, enables the uterus

to resume its functions. Thus Dewees advocates bleeding *ad deliquium*, somewhat on the same principle that it is used to reduce luxations, viz. to overcome spasmodic muscular contractions, while he acknowledges that tobacco only has succeeded in overcoming the muscular action of the fundus, without producing any effect whatever on the os tinæ; in the same manner, and for a similar reason, narcotics, opium, belladonna have been found ineffectual, if not dangerous. On the other hand, nauseating doses of tart. antim. as recommended by Dr. Kennedy,* the effects of which I have had full opportunity of judging; ipecacuanha, local depletions, as advised by Dr. Little;† all act on an antiphlogistic principle.

Whether, then, neglected inflammation be the cause, or that the structure of the os tinæ is unyielding, there is occasionally met with a species which might strictly be called the rigid os uteri, where the edges are perfectly unyielding, though sometimes thin, giving to the finger more the feel of a hole made in parchment than anything else. In such a case the action of the uterus will continue for hours without producing the slightest effect; it may then yield, and generally suddenly, but only to resume its rigidity. Where inflammation is the cause, this state may be altered by a judicious treatment, but where it arises from a really rigid condition of the parts, the prognosis is very unfavourable, and too frequently leads to artificial delivery. There is something peculiar in the class of persons where this form is met with. They are generally hard-featured, muscular, coarse-skinned women, very impatient of pain, and usually passed the middle period of life. In the vagina there is hardly any mucous secretion, and consequently it is by no means easy to make a satisfactory examination. This and the preceding variety have been generally classed under the head of rigidity, perhaps because a similar treatment is applicable to both;

* American Journal of Medical Science. February, 1836.

† Dublin Journal. March, 1836.

and the first, if neglected, may readily change to the second; there appears to be, however, a very essential difference between them, indicating very opposite conclusions as to the result.

Whether, then, the mouth of the uterus yields slowly, (independently of any effect which inflammation may produce,) or, that the action of the uterus is weak and irregular, the time occupied in completing the first stage is often considerable: it is here that a calm and decided practice is required, and here, unfortunately, the practitioner may be thrown into much embarrassment, from the opposite directions he receives. On the one side, he is warned, "that whether a short or a long time be required for this purpose, it is his duty to abstain from interfering;" on the other, "that he is to effect the dilatation of the os uteri in ten or twelve hours at farthest;" or, as is stated by Dr. Hamilton, "when the pains take place, if the dilatation prove tedious, that is, if six or eight hours do not advance the dilatation to such a degree, as to give reason to expect its completion within a few pains, it becomes necessary to interfere, lest the patient's health should suffer."* When we find the above maxim laid down in one of the most popular of the elementary works in midwifery, and confirmed by the lengthened experience of an eminent professor, "who, since the year 1800, has advised his pupils to secure the termination of the first stage of labour, within twelve or fourteen hours from its commencement;" it becomes essential to investigate the grounds upon which such a rule is founded; especially, where it is at variance with high professional authority, and with the experience of those, whose powers of observation command at least an equal respect.

There is, however, in limine, some ambiguity both as to the rule, limiting the duration of the first stage to fourteen hours, and as to the adoption of artificial dilatation, which throws a degree of obscurity over the whole question, and leads to some doubt whether the real difference in practice is so great as it appears

* Hamilton's Practical Observations, Part I. p. 225.

to be. Dr. H. states, "it is certainly possible, that after the first stage is *fairly begun*, it may be suspended for some hours, the uterine action no longer recurring. If, during the interval, there be no injurious pressure upon any part of the mother, *the previous pains are not to be reckoned*; but the duration of the first stage to be dated from the recurrence of the pains. Burns "need scarcely add, that in enforcing this rule of conduct, that to render it (artificial dilatation) proper, the pains must be continuing so often and so decidedly, that the patient can be said to be in actual labour all the time." There is thus, then, a doubt raised as to the meaning of the rule, when applied to the usual cases of tedious dilatation. Those labours which are tedious in the first stage, and which might be supposed to require assistance, are either where the uterine action is too weak to effect the dilatation within the given time, or where the os tincæ yields too slowly to its continued action. In labours of the first description, it is very common for the uterus to suspend its action after it has fairly commenced; and therefore, what might appear to others a very tedious dilatation, Dr. H., dating from the recurrence of the pains, may consider quite within the limits prescribed; unless, then, we are to understand a suspension produced by some cause foreign to the uterus itself, as "the agitation of the patient, or the mismanagement of the attendant," there is an uncertainty whether this class of tedious labours be at all alluded to.

In those of the second class we are still more at a loss. According to Burns, "two circumstances are necessary to render it (artificial dilatation) safe, the os uteri ought to be very considerably opened, its edges lax, dilatable, and, generally speaking, thin, and the dilation must be gradually and gently effected during the continuance of a natural pain." That state of the os tincæ which has been described as slowly yielding to the uterus, or what, in more expressive language, Dr. H. calls, toughness of the orifice, is a very frequent cause of prolonging the first stage of labour, and yet its edges are neither *lax*, *dilat-*

able, or thin, and consequently inapplicable to the means recommended. So that in the one case, the pains not being sufficiently decided, and in the other, the *os tincæ* being unfit, would appear to exclude a large class of cases most likely to transgress the rule.

In the adoption of this practice we are limited apparently to a case where the pains are continuing, “often, and decided,” and the *os uteri* “lax, dilatable, and thin:” and we can readily judge that should such a case be prolonged beyond fourteen hours in its first stage, that the attendant adopting those “gentle dilatations” recommended during a natural pain, may succeed in doing no mischief, and may attribute to his manual dexterity what belongs more properly to the uterus itself; but such interference is quite uncalled for, while, on the other hand, he may, as Dr. B. very properly remarks, “render the labour more tedious, and also lay the foundation of inflammatory affections afterwards.” It is true, Dr. B. would consider such to be the effect of “rash and unnecessary attempts;” but it is not easy to define what attempts are not “rash and unnecessary;” and as a general rule to guide pupils, it might be safer to prohibit any attempt whatever, unless required by imperative necessity, than to direct such as are uncertain in their application and liable to a dangerous abuse. The uterus will not bear such experiments with impunity, and the only motive which would justify either the rule of limiting the duration of labour to a given time, or the practice by which it is in some cases to be effected is necessity. There are few of any experience in the profession who would not agree in Dr. Blundell’s aphorism, “that a meddling midwifery is a bad one:” and therefore when we are called upon to interfere, necessity becomes our only justification.

That necessity can only be established by the mischiefs *proved* to arise from suffering the labour to be prolonged beyond the period stated.

These mischiefs are thus stated by Dr. Hamilton: * “That

* Hamilton’s Observations, Part I. 191, 192.

unless the first stage of labour (supposing there are regular pains) be completed within twelve or fourteen hours from its real commencement the following consequences may be dreaded :

“ 1st. That the powers of the uterus may be inadequate to expel the infant with safety to its life, or to the future health of the parent.

“ 2nd. That after the birth of the infant, the uterus may contract irregularly, so as to occasion retention of the placenta.

“ 3rd. That after the expulsion of the placenta, the contractions of the uterus may be too feeble to prevent hæmorrhage.

“ 4th. That supposing the patient to escape all those untoward circumstances, febrile and inflammatory affections of a most dangerous nature may ensue from previous protraction of pain and irregular distribution of blood.”

Dr. Burns threatens, “ that the vigour of the uterus and strength of the patient may be so much impaired as to render the subsequent stage dangerously tedious, or to prevent its completion, at least consistently with safety.” Here we have an enumeration of evils quite sufficient to establish the necessity of any rule of practice which would obviate them ; but in a point of such material importance, one not generally admitted, it would be more satisfactory if such *were proved* to be the result, and in this respect, though ample opportunities must have been afforded during such a lengthened practice, there is nothing beyond these dogmas, and the very equivocal case of the lamented Princess Charlotte of Wales, with which to satisfy the practitioner anxious to determine the utility of a rule “ which has been totally disregarded by the profession in London, Paris, and Dublin.”

In order then to determine the necessity of shortening the first stage of labour, so as to avoid such casualties, we can only draw a fair inference from a record of the accidents themselves, and in doing so, to avoid ambiguity, we shall include all cases where it is clearly shown that the vigour of the uterus was unequal to complete the labour, and therefore required artificial

assistance, or that the subsequent stage was rendered dangerously tedious from a prolongation of the first ; and here it is essential to guard against a mode of reasoning which would lead to a very erroneous conclusion: that of attributing to the length of the first, effects which are manifestly produced by causes originating in the second stage ; such as wrong position of the head, disproportion of the pelvis, rigidity of the external parts, &c. &c. These effects as often occur where the first stage is within, as where it is above twelve hours, because they have their source in other causes, and therefore have no reference to the question before us.

The practice of large hospitals, where the number of cases are so great, and the deviations from natural labour so frequent, must be a more certain means of judging of the utility of the treatment adopted, and of course of the evil effects of a useful remedy neglected, than can be derived from detached and isolated cases, however strong the proof they seem to afford of a particular line of practice.

We are furnished with very accurate and extensive tables from two very large hospitals, where this plan is never adopted, that of Paris and Dublin ; where consequently the number of cases where these evil consequences occur, and where the necessity for the assistance of art, must be greatly increased. Let us examine the number of cases in which the vigour of the uterus was unequal to accomplish the delivery with safety.

In the tables of MMdes. Chapelle and Boivin, we have the result of a very large number of cases from the hospital Maternité. From March 21st, 1803, to December 31, 1820, La Chapelle gives 37,895, in which all the operations and their causes are stated ; from which it appears, that under the head "*Inerties de l'uterus ou retrecissemens des parties genitales externes*," there are eighty-six forceps operations, and thirty-one cases of turning, making altogether 117, or one in 329 cases nearly. This number includes inertia from causes in the second stage as well as the first ; and it is only necessary to read some

of the cases detailed, to perceive that a very trifling cause will sometimes be sufficient for an operation. In her detail of forceps cases (vol. i. p. 176,) twenty-one are stated to be from inertia uteri. The duration of the first stage is loosely stated, sometimes not at all ; but in only five can it be shewn to exceed twelve hours, while in many it was less, and in some very rapid, (cases 57 and 59, pp. 278 and 282, vol. i.) the cause of inertia being clearly referrible to the second stage. In her memoir on *Inertia Uteri* (vol. iii. p. 313,) she relates fifty-seven cases, twenty of which are in consequence of schirrous os tincæ, tumours in the vagina, and other states of disease. Of the remainder, ten are caused by obliquities of the uterus ; six wrong positions of the head ; four rigidity of os tincæ ; three distention from the waters ; one rigid membranes ; one premature rupture of membranes ; and six weak uterine action : in six cases the cause is not given. Of the six cases of weak uterine action, the dilatation of the os uteri, in four, was within twelve hours ; and in two, above. Whether, then, we look to the cases which required to be delivered from the vigour of the uterus being impaired, or to the causes of inertia itself, we find the length of the first stage of labour forming but a small proportion amongst them.

Madame Boivin gives no detail of her operations ; but in the general table of 20,517 cases, we find fifty-two delivered from inertia, a proportion rather less than La Chapelle. In the collective tables there are 58,412 cases ; of these only 169, or 1 in 344, required assistance, in consequence of the inability of the uterus to complete the delivery ; and as far as can be ascertained, the lengthening of the first stage of labour was very seldom the cause.

In the report of the practice of the Dublin Lying-in Hospital, as given by Dr. Collins, we have still more complete details, which, for accuracy and fulness, cannot be surpassed. In the chapter on tedious and difficult labours, three kinds of cases are given ; those in which the labour is prolonged, but had no unfavourable symptoms to require interference ; those in which

“ the mouth of the womb is fully dilated, the soft parts relaxed, and the head low in the pelvis, so as to bring the ear within reach of the finger, but that the safety of the patient requires assistance ;” here the forceps was used. But Dr. C. remarks, “ that under these circumstance, uterine action fails but seldom in expelling the child ;”^{*} or in other words, that where obstacles in the second stage do not occur, the vigour of the uterus is rarely so much impaired as to render that stage dangerously tedious. 3rdly, when from disproportion of the pelvis, or from other urgent causes, the safety of the parent requires that the delivery be completed by the crotchet. Of these three classes, the second is that to which may be referred cases of uterine inertia which might depend upon a prolongation of the first stage. There are in 16,414 patients, fourteen such cases.

With regard to hæmorrhage and retention of the placenta, inertia of the uterus is undoubtedly a common cause of both ; and that inertia may be the effect of long continued labour ; but it often is not : and the first stage being completed within fourteen hours, or the whole labour within twenty-four, affords us no security against either of these accidents ; not to say that the effect of irritating the os tincæ by artificial dilatation may, by deranging the regular action of the uterus, very probably give rise to either or both.†

The result of these tables, then, proves, that where no difficulty arises in the second stage of labour, and that the uterus is not interfered with, it is almost always capable of completing

^{*} Collins' Practical Treatise on Midwifery, p. 10.

† In Dr. Collins' Report, under the head Hæmorrhage occurring at Birth, there were,

Within twelve hours in labour,	92 cases.
Between twelve and twenty-four hours,	10
Above twenty-four hours,	15

Under Retentions of the Placenta :

Within twelve hours,	48 cases.
Between twelve and twenty-four hours,	7
Above twenty-four hours,	7

the delivery with safety to the mother and child. Those difficulties by which either is hazarded, exist in the second stage, and are produced by causes of greater or less magnitude ; and it is obviously unfair where several causes may produce the same effect, to ascribe it solely to one, and that the most improbable of the whole.

So far, then, as the consequences to be dreaded from suffering the first stage of labour to exceed twelve or fourteen hours, may be collected from the history of cases where these effects were produced, we find but few to which such a cause may reasonably be attributed ; and in the absence of opposite testimony, we must conclude that the length of the first stage of labour is hardly ever the cause of rendering “ the uterus inadequate to expel the infant with safety to its life, or to the future health of the parent :” but in making this assertion, it must be understood to apply to cases where it is possible, or might be supposed possible, to shorten this stage by artificial means ; and not to those cases of absolute rigidity which are quite inapplicable to the practice we are now considering, but which may and have been attended with dangerous consequences. Such cases have clearly no reference to the present question ; and whatever difficulties they present to the application of the principle before us, are silently passed over by its advocates, and appear to be made exceptions to the rule.

If, then, the necessity of such a rule is not apparent, no motive of expediency or convenience, no argument of facility in operation, should be considered sufficient to warrant an unnecessary interference in the natural progress of parturition, because though nature will sometimes bear with impunity such intermeddling, we are not justified in hazarding an opposite risk, and exposing our patient to a gratuitous addition to her sufferings. If it did not lead to a new subject of inquiry, we might go a step farther, and shew not only that it is evident that injurious effects do not necessarily arise from a continuance of the first stage beyond fourteen hours ; but that, where the os tincæ is

not rigid, and is free from inflammation, in the great majority of such cases, the results are peculiarly favourable as compared with other causes of danger to the mother or child ; such a fact must be known to those practitioners who have sufficient patience to give nature a fair trial, and, some cases are here detailed to illustrate its truth ; but in discussing such a proposition, we have a difficulty to contend against, arising from the impossibility of distinguishing in the hospital reports those cases where the labour was rendered tedious from the duration of the first, from such as were delayed in the second stage of labour. We have, however, some direct evidence, though derived from a smaller number of cases. In Dr. Churchill's Report of the Western Lying-in Hospital, (1837,) the length of first stage of labour is accurately given, from which it appears that in 202 patients, it was within 10 hours in 139 cases ; within 22 hours in 40 ; within 60 hours in 23 cases.

He further states, with reference to the cases in which the first stage was so long, that “no evil consequence resulted, and they were amongst those in whom the remaining stages of labour were shortest.” It would lead to a premature discussion on the second stage of labour, to show that the same conclusion may be collected from the reports already quoted ; because, it must be derived from the returns given of the duration of the whole labour, and from a comparison of the result in those who were delivered naturally, or by manual aid in those cases, which exceeded twenty-four hours. The result of such an investigation would prove, that where causes of a far different character do not interfere, that it is rather a matter of surprise the length to which labour will be continued consistently with the most favourable conclusion. For our present object, it is sufficient, however, to show, that the evil results attributed to a neglect of the rule laid down, can in no way be proved to arise.

Having thus sought for proof to determine the validity of the doctrine so warmly advocated by Drs. Hamilton and Burns, as well as the propriety of the means by which they have pro-

posed to effect it ; the conclusion to which I have been led, appear clearly against both.

1st. No proof is given, neither do the records of the largest hospitals, in Europe, nor their practice, establish, that the prolongation of the first stage of labour beyond fourteen hours, so impairs the vigour of the uterus as to become dangerous to the mother or child.

2nd. That in cases where the pains are continuing often and decided, while the os tincæ is lax, dilatable, and thin, the uterus hardly ever fails, unless from some obstruction in the second stage, in expelling the child with safety to both ; and therefore, that the practice of hurrying on the first stage of labour is totally unnecessary.

3dly. That considering the structure of the os tincæ, how readily a derangement in the order of labour may be produced, and its liability to be inflamed from irritation, such a practice might become absolutely mischievous.

In making these remarks upon such an essential point of practice, and in discussing the opinions of Drs. B. and H. with reference to it, I feel every disposition to receive their authority with that respect which their professional station deserves ; and where their doctrines are in direct collision with others of the same eminence, to examine without prejudice their truth. It is for others to judge, whether I have succeeded ; and, if I have been led into error, I shall be glad to acknowledge the mistake. But the conclusions I have stated, have been derived from personal observation ; in which, if any prejudice were infused, it was rather in favour of than against these opinions ; being inclined to think that patients were suffered to linger in labour far too long, and that any means of shortening their sufferings would be a benefit, I find them to be further confirmed by the testimony, not of opinion merely, but of facts. I have, therefore, the more confidence in their truth, and of the error of the practice which has been the subject of discussion.

The length to which this paper has been extended, will only

permit me to add a very few and brief remarks on the treatment recommended for rigidity ; which is, by far the most important cause of tediousness in the first stage of labour ; and to which the practice which has been considered cannot be applied. There is little difference of opinion as to the general treatment ; it is, therefore, only necessary to state the circumstances under which it may be most usefully applied. Two descriptions of patients, very different from each other in constitution, often have apparently the same degree of rigidity. The one sanguineous, muscular, and violent, (wasting their strength in unavailing efforts to relieve themselves, sometimes even forcing down the undilated uterus into the pelvis,) are especially liable to inflammation in the os tincæ, which increases the rigidity. To these, bleeding, tart. antim., ipecacuanha, are applicable, on the principle of counteracting that tendency. With the most plethoric and violent patients, if nausea be excited, they soon become comparatively tranquil. As a preliminary to this, bleeding is useful ; but unless the head be much engaged, it is not generally necessary. The other, more delicate, are easily excited, irritable, and anxious ; with them, the uterine action is very irregular ; any indiscretion on the part of the attendant might cause it to be altogether suspended, and too much caution cannot be used to avoid any thing which may depress them. Under the best management, however, the uterine action is irregular, and they are often teased by its spasms rather than by actual pains ; if the waters are long discharged, irritation is excited in the os uteri, which retards its dilatation. In these cases, opium appears particularly to be indicated, and has been given with much benefit in the cases detailed.

CASE I.—*Twins ; Tedious Labour ; Opium.*

C. H., aged 18, was admitted in labour of her first child, March 18, 1833. She had no actual labour until the 20th, when the dilatation of the os tincæ commenced, and continued to yield very slowly until the morning of the 22nd, being about forty-eight hours.

She was apparently exhausted by the continuance of the labour; became restless and anxious; pulse 100, but quite compressible; the pains were growing weaker, and she was ordered an anodyne, (Tinct. Opii. gutt. xxx.) She had some hours' rest, and was awakened by the renewal of strong and regular pains, (pulse 96,) and about 10 o'clock P. M. was delivered of twins, both girls, and presenting naturally. The whole length of the labour was about sixty hours, for about six of which the pains were suspended. In the birth of the second child, the feet descended with the thorax, and were crossed under the chin. The chest was thus so much compressed that it was impossible to establish respiration.

The remaining child and mother did well, and were discharged in the usual time, without having had a single unfavourable symptom.

CASE II.—*Labour, 72 Hours.*

B. M., aged 34, was admitted in labour of her first child, July 15, 1833. Her labour did not commence until the 16th, when at 9 A. M. the os tincæ was dilated to the size of a shilling; the membranes could only be felt during the day; but at 9 P. M. the os uteri being more dilated, and by examining with the left hand, the head could be felt resting on the pubis, but the membranes only occupied the brim.

17th. 9, A. M. Membranes entire; head a little more in the brim; pulse 80; tranquil, without any unfavourable symptoms; in the course of the day the waters were discharged, and at 9 P. M. the head was found more in the brim, yet very much on the pubis.

18th. 9, A. M. Head has made some advance; pulse 80; pains stronger and more regular, the os tincæ becoming tender to the touch. She was ordered an emollient enema, which, not having acted on the bowels, was repeated at 4 o'clock P. M., with the addition of turpentine; after the effect of this the tenderness disappeared, and the dilatation was soon completed. However, the pains again were becoming weak, and the pulse

increasing in frequency (90), though quite compressible, and rather feeble. She was given an anodyne in wine and water, which procured some rest; strong pains returned, and the head advanced through the second stage during the night, and on the 19th, 9 A. M., she was delivered of a living child.

She was discharged on the 26th, without having had a single unfavourable symptom.

In this case, in consequence of the action of the uterus being directed so much on the pubis, (posterior obliquity,) the os tinæ occupied sixty hours in dilating, while the second stage was only twelve.

This is just such a case as would have authorized Md. La Chapelle to turn and deliver by the feet.—Vide Vol. III. p. 342, No. 12.

CASE III.—*Tedious Labour, 1st Stage thirty-six Hours; 2nd, two and a half Hours.—Opium.*

J. F., aged 21, was admitted in labour of her first child. The os tinæ was found thin and dilated to the size of a shilling on the morning (9 A. M.) of July 28th. The mucous discharge was abundant; the pains were weak during the day, increased towards evening, and became strong and regular during the night. 29th, 9 A. M., the dilatation was scarcely increased; the head fully in the brim, and the os uteri thinly spread over it, so as easily to feel the sutures; the pains were variable during the day, and at 9 P. M. the os tinæ was nearly in the same state. She was ordered a grain of opium, which was followed by a very short rest; she was roused by quick and regular pains, and was delivered of a living child at 11½ o'clock, P. M.

She was discharged in the usual time, without any unfavourable symptom.

CASE IV.—*Tedious Labour, 1st Stage thirty-six Hours; 2nd, ten Hours.*

M. N., aged 30, was admitted, September 18, in labour of her first child; her labour did not commence until the 20th,

being preceded by spurious and distressing pains, 9 P. M. The os tincae was dilated about the size of sixpence; the margin swollen and rigid. Ordered an anodyne, which procured some rest during the night; strong and regular pains succeeded, but returning at longer intervals than usual; they continued thus during the day (21st), and at 9 P. M. the os tincae was dilated about three inches diameter, soft and dilatable; the pains during the night continued of the same character, but towards morning (22nd) became strong and quick; at 9 A. M. the os tincae was fully dilated, and, 3 P. M. the membranes presented at the os externum, and remained for some time pressing moderately on the perinæum; they were ruptured accidentally, and the head remained about three hours between the ischia, (during which time the foetal heart had been heard,) when it began to emerge from under the pubis, and she was delivered at seven o'clock P. M. of a still-born child, caused by delay in delivery of the shoulders. She was discharged in the usual time, without any unfavourable symptom.

CASE V.—*Inertia Uteri. 1st Stage, twenty-four Hours; 2nd, five Hours.*

E. C., of a delicate aspect, was admitted March 30, in labour of her first child. It commenced with a severe rigor, followed by feeble pains; the pulse was regular, but weak, and the surface generally cold: the extremities were kept warm, and she was given warm drinks during the day. No change, however, took place in the character of her pains, and in the evening she was given a grain of opium and some wine whey; after which she fell asleep. She awoke with stronger pains; the pulse increased in fulness; the os tincae rapidly dilated, and was completely so at nine o'clock A. M. At one o'clock she was delivered of a living child. Both did well, and were discharged on the 6th of April.

ART. XI.—*The History of a very extraordinary and unusually violent Case, (supposed to have been engendered by Glanders,) which terminated fatally in the Hospital of the 2nd Dragoon Guards, at Cahir Barracks, Ireland, 30th April, 1829.* By ANDREW BROWN, Surgeon 2nd Dragoon Guards.

GLANDERS, until lately, was generally considered, I believe, a disease exclusively belonging to the horse, the ass, and the mule. But within the last few years, there are several cases on record, which unequivocally shew the facility with which it may be communicated to the human subject by the contact of morbid matter (from any of those animals) with the surface of incised or lacerated wounds; evinced not only by the subsequent inflamed state of the lymphatics, distinctly traced from the part originally inoculated, terminating rapidly in ulceration, similar to farcy; but that the matter again taken therefrom possesses a most active power of reproducing this disease in its most acute and genuine form, invariably ending in death; thus proving its existence in our own practice, as well as its extreme virulence, beyond the possibility of a doubt.

I am not, however, yet acquainted with any authenticated case having heretofore occurred, where this truly formidable disease has been communicated to man by other means, either by cutaneous absorption, by effluvium, or by the incautious application of glandered matter to the nasal linings, in picking, scratching, or blowing that organ. And should it be admitted, that there is even a possibility of introducing this direful malady into the human system by any one of these means, or by a combination of the whole, then the following singularly untoward case may be, at least, elucidated, if not clearly and fully established.

CASE.—Corporal John Wells, aged thirty-eight, a tall, well-formed, florid-complexioned, healthy-looking man, originally a labourer, and had been upwards of nineteen years in the corps; during the whole of which lengthened period, he “was never

once in the doctor's list," always enjoying the best possible health, until the 16th of April last, when he was suddenly awakened from an unrefreshing sleep by rigors, headach, and irritability of stomach, all of which continued unabated when admitted into hospital next morning ; complaining, in addition, of severe continued pains, and stiffness in all his large joints, which became excessively aggravated on the slightest motion. I am just informed, " these are the constant precursors when a combination of severe acute glanders and farcy first appears in the horse ; and in all cases thus ushered in, death speedily and inevitably follows." He laboured, likewise, under great depression of spirits, restlessness, and a general disturbance of all his functions, which he could not possibly refer to any particular cause. But on subsequent inquiry, it appeared, that he had sole charge of a glandered horse for some time previous, which had been destroyed on the very evening of his attack ; and that he had skinned him, and exerted himself a good deal in cutting up and burying the carcass. But these circumstances did not then create the least suspicion ; and his complaint was considered a very severe case of acute rheumatism, and treated as such. However, on the morning of the 19th, two days after admission, finding that the severity of his pains increased under the most active means, and that his constitution was no longer able to bear a continuance of them, Dr. Home and myself became truly alarmed, even at this early stage of the disease, in observing its unconquerable violence, and novelty of appearance, forming thereon, in consequence, a very unfavourable prognostic.

From this period, the constant and general pain, night and day, became excessive, and violent to a degree ; but particularly over the left shoulder, which, on examination, shewed the scapula slightly tumefied, although not inflamed ; but being above the temperature of health, leeches were consequently applied over its entire surface ; and it bled profusely for some hours after, without affording the least relief : but it shortly after became hard, ecchymosed, and insensible to the touch.

The severity of his sufferings continued unabated ; and on the morning of the 24th, seven days after admission, the tumour over the scapula had assumed a dark livid colour, and attained a considerable size, resembling, in a strong degree, the shoulder of a man recently and severely punished.

Similar tumefactions, but more circumscribed, were now observed on the legs, arms, and sacrum, and one of considerable magnitude over the left temple, which had already distorted the entire face. The eye being apparently diminished and humoury, the lids tumefied, the inferior one with a prominent doubling in it, the conjunctiva pale and infiltrated, as well as the membrana nictitans and caruncula lachrymalis. The skin and cellular membrane of *this* tumour, together with *those* on the extremities, became like *that* on the scapula, hard, insensible to the touch, and of a dark chocolate colour ; convincing us that the application of leeches to the original one, was not instrumental in the production of those appearances, as we had then supposed. The right nostril was likewise contracted, and gummed with an inspissated discharge ; and he complained of constriction of the throat, with difficulty in swallowing cold liquors, but not those previously warmed ; and on examination, the posterior fauces were found much inflamed, and nearly of the same purple hue as the *tumours* on the surface ; the whole of which observed regular gradations from their commencement : first showing themselves, not simultaneously, but in succession, by a slight discoloured puffiness of the skin and cellular membrane ; generally nearest the bone ; they were next observed after a lapse of twelve or fifteen hours, diffused over their entire surface with a deep vermilion blush, which then changed rapidly into a dark brown ; the integuments becoming thick and callous, with fissures or superficial cracks, from which exuded a thin, acrid, corrosive sanies. These formed their characteristic appearances without any very material deviation, or producing the slightest mitigation of suffering throughout, which had now become so excruciating as to baffle every effort of art to procure

either sleep or rest ; not even whilst in the warm bath has he had a moment's respite from pain.

His thirst from the beginning had been great, with a foul parched tongue ; his pulse varying from 88 to 96, and full, but easily compressed ; and the blood abstracted at the commencement of this disease, appeared much attenuated, buffed, and deprived of the coagulating principle. His bowels (constantly attended to) were easily kept free, and his excretions, both urinary and alvine, were always natural in every respect, showing the alimentary canal perfectly healthy.

In this state he advanced into the morning of the 28th, his eleventh day under treatment ; when several distinct, warty pustules, considerably raised above the surface of the skin, were first observed on different parts of the body, very much resembling yaws, but particularly numerous and large over the right side of the neck and shoulders, and on the inside of the arms and thighs.

Several of the tumours already described, but particularly the one over the shoulders, appeared now to be running rapidly into gangrene ; which had not been in the slightest degree impeded by the copious exhibition of tonics and antiseptics ; and the powers of nature being at length quite exhausted, his pulse scarcely perceptible, his countenance frightfully haggard and livid, his entire surface bathed in a cold clammy sweat, and of a pale leaden hue, we expected every moment to be his last. He, however, held out in a partial state of somnolency and a low muttering delirium until the morning of the 30th, when death happily released him from his misery : having been twelve clear days under treatment in hospital.

Post-Mortem Examination.—Eighteen hours after death the body was examined by Assistant-Surgeon Dr. Home and myself, and presented the following appearances :—

The entire surface exhibited a most unsightly deformity, with extreme emaciation, being nearly covered by black gangrenous tumours of various sizes, each surrounded by numerous

small vesications about the size of peas, which, with those over the neck, shoulder, arms, and thighs, at first sight resembled the yaw pustule, but on cutting into them they were found to be merely elevations of the cuticle filled with a dark, violet-coloured, inspissated lymph; and a strong suspicion having been recently entertained, that the causes and effects of this disease had their origin in glanders, it was considered essential, in the first instance, to have the absorbents of each arm minutely examined to their termination in the axillary glands, in order fully to ascertain whether it might have been communicated through their medium to the system generally. These vessels, however, as well as the glands, were found in their natural state; nor was there the slightest appearance of either absorbent, glandular, or cutaneous inflammation, nor of any recent cicatrices, chopped or scratched fingers; or in short, the slightest breach of integument, or abrasion of skin, by which absorption of morbid matter could have been facilitated into the system, any where discoverable.

The head was next examined, and on removing the scalp in the usual manner from the cranium, and thereby dividing the tumour already specified, we observed, immediately over the left superciliary ridge, a cluster of tuberculated bodies of various sizes, imbedded in a lamina of the cellular tissue exterior to the pericranium.

At this stage of the dissection, the presence of our highly talented and much esteemed veterinary surgeon, Mr. Woodman, was solicited, and on his arrival he unhesitatingly recognized a strong resemblance between *these* and *those* usually found in the nasal linings of glandered horses after death.

The skull-cap was now removed, and discovered the brain much more pale and soft than ordinary, with rather a larger proportion of fluid in the ventricles; but on removing with the saw that portion of the cranium situated between the orbits, the Schneiderian membrane lining the frontal sinuses and passages into the interior æthmoid cells, appeared throughout not

only pale, thickened, and infiltrated; but in the right frontal sinus was found another cluster of what Mr. Woodman considered to be "well-defined, ulcerated tubercles, and exactly similar in appearance to what we have in the membrane lining the frontal sinuses and other cavities of the head in *acute* glanders in the horse."

The posterior fauces were next examined and found highly inflamed, of a dark purple colour, and on the surface of the right tonsil there were four or five ulcerated patches of a similar character with preceding, but neither the thoracic or abdominal viscera presented any vestige of this formidable disease, all of which appeared perfectly healthy, except that the tissues of the heart might be considered rather more pale and flabby than usual.

We now resumed the examination of the trunk, first inspecting a large, hard, cancer-like tumour, spreading backward over the scapular region, and downwards by the serratus and latissimus dorsi muscles, the most prominent part having cracked or separated previous to death, from which exuded a thin, highly fetid ichorous sanies; and on cutting through this disorganized mass down to the bone, the muscles appeared perfectly decomposed, and of a dark liver colour, (exhaling a peculiarly fetid odour, similar to cariosity,) with points of purulent matter, as it were, infiltrated everywhere through its entire substance, resembling much a hepatized or tuberculated lung; and on removing the whole of this diseased mass from the bone, the scapula was observed nearly covered by a cluster of grey, circular tubercles, the whole composed of fine cellular tissue, enveloped in small cysts, and firmly attached to the periosteum, differing only in this respect from those found in the pericardium.

The other tumours on the sacrum and extremities were all separately examined, and exhibited precisely the same character and appearance with those already described, each covering a crop of tubercles adhering to the periosteum under-

neath, and proportionate in size and consistency to the extent and duration of the tumour.

The muscles generally, even those the most remote from the tumours, appeared blanched and flabby, the fibres softened, and the cellular membrane infiltrated with a yellow serosity; in short, the entire frame was here more or less contaminated in a very uncommon degree.

Having now faithfully, and I trust clearly, concisely, and accurately detailed the most prominent features in the primary appearance, the progress, and the termination of this violent and extraordinary malady, I shall purposely refrain from offering any opinion of my own on either its cause or character, but leave it entirely to the erudite reader to form his own conclusions thereon from the foregoing details.

ART. XII.—*On the Use of the Nitro-Muriatic Acid Bath.* By CHARLES LENDRICK, M.D., T.C.D., King's Professor of the Practice of Medicine, Clinical Lecturer at Sir Patrick Dun's and Mercer's Hospitals, Honorary Fellow of the College of Physicians, &c.

[Read at the re-union of the College, 18th March, 1837.]

I HAVE often inculcated on my pupils, the importance of accurately scrutinizing the merits of obsolete modes of treatment, rather than speculating on new and untried remedies; under the conviction, that there is little recommended on respectable authority, which is not of efficacy in *some* cases. The great difficulty is, that the discoverers or partisans exaggerate the effects of their favourite specifics; and thus, what is really valuable in some instances, by the universality of its application and consequent failure, soon falls into discredit, and is employed in none; a negative error on the part of the profession at large, nearly as great as the positive one committed by the panegyrist.

It is thus with the nitro-muriatic acid bath, which at one time, perhaps, held too high a place in public estimation. It is now as unjustly decried as of little use, and writers of experience have avowed their total want of confidence in its powers. The persons, however, who entertain this opinion, seem to have made but an imperfect trial; and to have contented themselves with a *partial* application of the acid, in the form of *foot-bath*, or that of a lotion to the lower extremities.

Many years ago, I accidentally recommended it as a *general* bath, and the effects were so surprising that I have never prescribed it in any other form since. Several cases in which it had been used ineffectually in the common way, have come under my care; and the most complete success has followed the total immersion of the body in the acidulated water.

The mode of application scarcely requires detail. The patient is placed in a common warm bath, at a temperature of from 90° to 95° , (according to his feelings,) twice or thrice a week, and for a period of fifteen or twenty minutes. Into each bath (of from thirty to forty gallons of water) are poured from an ounce and a half to two ounces of concentrated nitric, and from two to three ounces of muriatic acid; the proportion being nearly that of two to three.

This practice may be continued for weeks or months. The use of the bath does not seem to produce either debility or any other derangement of the general health; nor have I seen ptyalism or those eruptions of the skin described by authors as its effects, except once, and that was when it was used in a less diluted form as a foot bath. Idiosyncracies will, however, occasionally produce anomalous symptoms, as in the case of other remedies. Its application ought, therefore, always to be superintended by a medical practitioner.

It is well known, that the nitro-muriatic acid bath was first recommended, as a substitute for mercury in those cases of hepatic disease which are so frequently endemic in hot climates. My own opinion is, that it is admirably calculated in most dis-

eases to produce the beneficial without the risk of the injurious effects of mercury ; and that, although inferior to that remedy in some, it yet enables us to accomplish our object in cases where the administration of mercury would involve perilous consequences.

There is a disease known to the public by the name of *liver consumption*. It generally occurs in scrofulous habits, and is probably connected with tubercular growth in that viscus, as well as with the commencement of pulmonary phthisis. The complexion is sometimes florid, but more usually pallid or sallow ; there is a short dry cough, loss of flesh, and hectic symptoms. The patient complains of pain in the region of the liver, and also of fugitive pains in the thorax, resembling pleurodynia. On examination, there is a fulness of the right hypochondrium, and pain on pressure. Auscultation gives us but little information as to the state of the lungs, as tubercles, unless aggregated at the superior part of the organ, are scarcely distinguishable, and may exist in the *diffused* form to a considerable extent without being detected. Even the positive side of the question is liable to uncertainty, as a slight curvature of the spine (very frequent in such cases) may cause a compression of the superior part of one lung, so as to render the sound dull both on percussion and as to the respiratory murmur. It is only when the dulness is very considerable, and that the space in which it is heard is found to *increase* in dimensions on repeated examinations, that the presence of pulmonary tubercles can be inferred with any certainty.

Together with the general derangement of the biliary and digestive functions there are frequently developed in females the Proteous symptoms of hysteria, with those of chlorosis, or some morbid state of the menstrual secretion.

Where the symptoms of *biliary* derangement predominate, with fulness or tenderness of the hypochondria, it is a common practice to have recourse to *mercury*, on the supposition that it may be effectual in impeding the commencement of disorga-

nization ; and yet it is scarcely possible to imagine any mode of treatment more destructive in the majority of instances, or which has done more decided mischief. An occasional mercurial *purgative* may prove beneficial ; but if the attempt be made to cause the *constitutional* effect of mercury, and to touch the mouth, we shall generally find that the mercurial *cachexia* is produced, phthisical symptoms set in, and on examination after death we observe softened tubercles in the liver, lungs, or in both, and which there can be little hesitation in ascribing mainly to the mercurial treatment.

In such cases as those described above, I have never found any treatment so effectual as the nitro-muriatic acid bath. The hepatic and even the pulmonary symptoms seem to yield to its influence, and the patient regains flesh and strength. I do not mean to say, that in all the cases where this satisfactory result ensued, I had relied on the bath exclusively ; but in some of the most *unpromising*, and which had baffled every other mode of treatment, the nitro-muriatic acid bath *alone* seemed to accomplish a cure, and the patients are, I believe, now in perfect health. Even in those cases where the injudicious use of mercury had already proved injurious, the bath seemed to be the best corrective, and to accomplish all that could be expected under such circumstances.

There is indeed scarcely a disease in which mercury usually proves beneficial, where, under some modification of the malady or in some peculiar state of the constitution, it does not act decidedly as a poison, and in such cases the morbid state thus set up always presents some of the characters of the *original* disease for which mercury was exhibited, but in an aggravated and intractable form. This is the case in diseases of the liver, in dysentery, but especially in syphilis. Thus we observe even where mercury has scarcely *perceptibly* disagreed with the constitution, new chancres breaking out,—irritable ulcers formed in the throat,—and the operation of the disease determined to the periosteum and bones, long before the time that its effects could

have been expected to reach those structures in the ordinary way. How often do we see patients in the last state of marasmus, covered with ulcers, and their bones carious, and yet these persons have been taking mercury (off and on) for months or years, and to such an extent as would have been sufficient to cure the most inveterate form of true syphilis, as the destruction of their gums and teeth by repeated salivations fully demonstrate.

Now, there can be no question that the observation of John Hunter, as to these cases, is correct, namely, that a disease combined of the venereal, of the morbid action of mercury, and of the (often *temporary*) state of the constitution, has superseded the venereal for the time being, and that on its removal by appropriate treatment (to the exclusion of mercury) the genuine syphilitic disease will present itself in its true colours. Thus we often find that by the use of sarsaparilla, nitrous acid, and other *non-mercurial* remedies, we cure the patient *up to a certain point*,—then the disease becomes stationary, the symptoms become slowly aggravated, our whole host of non-mercurial remedies are *recurred* to in succession or combined, but in vain; they seem to have lost their influence; and *now*, if the patient be carefully and judiciously subjected to a mercurial course, he is effectually cured by what for years had proved to him a poison, provided he has previously left it off for a sufficient length of time. This state of things can only be accounted for on the supposition, that the mixed syphilo-mercurial disease had supplanted the former,—been kept alive by successive administrations of mercury, and that on its subsidence, the genuine syphilitic affection, now freed from the mercurial complication, has presented itself capable of being cured as *at first* by mercury alone. It is right to add, however, that in *some* cases the syphilo-mercurial disease seems *altogether* to supersede, and not merely to suspend the other, so that on *its* cure by non-mercurial treatment, all is well, and there is no more to be done.

Now our hopes of success in these inveterate cases solely depends on permitting the mercurial morbid action *completely* to wear itself out, as it will sometimes do spontaneously ; but more probably by having recourse to those remedies, whose reputation as anti-venereal specifics is to be attributed to their power of extinguishing the mercurial complication. This, however, requires no slight degree of resolution and firmness on the part of the medical attendant. Rendered impatient by the remonstrances of the patient against his dilatory practice, and suspecting a latent, pure, syphilitic taint, which he feels certain will yet require mercury for its removal, he seizes on what he conceives to be a favourable moment for its administration ; the patient mends for a time ; the mercury again disagrees, is necessarily left off, and the cure is more remote than ever ; for a *fresh* morbid stimulus is given to the disease, and must be eradicated with the rest. It is thus, that attempts upon attempts are made at a cure, and after the patient had given up all treatment in despair, he, if of a sound constitution, gets well in course of time ; or after a long period spent without using mercury, a lucky practitioner, who comes across the case at a favourable moment for the use of that remedy, has recourse to it, on no better principle than “ kill or cure,” and the patient is saved.

Whenever, therefore, we meet a case in which mercury has been used in vain, after it has once, as the phrase is, “ gone astray,” we must push our non-mercurial treatment to the *acmé*, before permitting the patient to use a grain of that medicine. The disease may seem to be bringing him to the grave ; it *may* do so, but mercury will only send him there the sooner ; and extinguish, perhaps, the last hope of preserving his existence. By sedulous attention, the symptoms may almost always be kept in check, and at least an amendment produced ; and it is after a long time, when this amendment begins to subside, and the character of the symptoms begins to undergo a change, that mercury should again be had recourse to. If this be done with

circumspection, with due attention to its effects, and with the caution of suspending its administration, or any *doubt* as to its morbid influence being present, the probabilities of a cure are very considerable in the great majority of instances. It is the *premature* attempts to effect this desirable consummation, that so often bring the constitution into such a state, that it will not wear long enough to accomplish our object.

Every addition, therefore, to our stock of non-mercurial, or perhaps I might call them (as far, at least, as its morbid action is concerned) *anti-mercurial* remedies, must be looked upon as a valuable acquisition. The more we have, and the more they approximate in their operation to the beneficial, without the injurious effects of mercury, the greater are our means, either by their successive or combined administration, of bringing about, by long and not injurious delay, that fortunate period—when, if the symptoms still continue, we may venture on the administration of mercury without hesitation, and with well-grounded confidence. The merits of sarsaparilla, nitrous acid, chlorine, &c., and especially (as judiciously recommended by Mr. Wallace) the hydriodate of potash, are well known. I consider, however, the nitro-muriatic acid bath as inferior to none, and superior to many; and it possesses the advantage, that being an external application, it in no way interferes with the administration of the others. Indeed most practitioners would, under such circumstances, use the common warm bath at any rate, and it is not rendered at all more inconvenient by the addition of the acid.*

* Since writing the above, I have read Dr. Colles's work on the use of mercury, and I quite agree with him, that much of its failure in primary syphilis is attributable to its not getting the fair play that mercury obtains in other diseases of an inflammatory nature. For many years I have laid down the following rules for the guidance of my pupils.

1st. Before administering mercury, to remove, as far as practicable, both constitutional and local irritation.

2nd. To administer, *previously*, purgatives, and antimonials, and to use the

ART. XIII.—*An Account of Tubercles in the Air-cells of a Bird, and some Observations on Tubercles in general.* By ROBERT HARRISON, M. D., Professor of Anatomy and Physiology in the Royal College of Surgeons in Ireland, and one of the Surgeons of the City of Dublin Hospital, &c. &c.

No one subject in medical science has of late years excited more interest than the characters of that train of morbid action, known by the name of "*tuberculous deposit*;" and as no unimportant addition to our knowledge has been derived from the investigation of this disease in the lower classes of animals, I have considered that it may not be uninteresting to present a brief statement of this morbid occurrence, in a member of that class in whom it has not been commonly observed.

Tubercle is well known to be frequent among many of the mammalia. To the quadrumana brought to these countries, it has proved the most frequent cause of death; and all the phenomena previous to this result, as well as those observed on "post-mortem examination," have been in most respects similar, nay, identical with phthisis in the human subject. Tubercle has been detected in the lion, horse, dog, goat, pig, hare, rabbit, porpoise, and numerous others; I have seen several examples of it in the cat.

warm bath; also to bleed the patient, if of a full or robust habit. The diet to be at first low, then middle, but seldom to reach the grade of *full*, unless in debilitated habits.

3rd. To use the warm bath, antimonials, and purgatives, occasionally, *during* the course.

4th. To *insist* on confinement, except when exercise in the open air is *enjoined* in *asthenic* cases as a part of the *treatment*, instead of being *permitted* as a relaxation.

5th. To discontinue mercury temporarily, on the occurrence of any *doubt* as to its operation.

To the above must be added, (in those cases of secondary syphilis where it has been abundantly used,) the discontinuance of mercury, and the administration of the substitutes for it.

In domestic and other animals, whose mode of living has been subjected for any length of time to any great alteration in their natural habits, either as regards exercise or diet, its occurrence may be expected; thus, the dairy cows at Paris, who pass their time in absolute rest, become tuberculous: in rabbits confined in cold, damp, and dark situations, and who are compelled to live on food not suited to their taste, or general organization, the disease may be, artificially as it were, produced; the monkey too, in whom it is so common and so frequent, may, from the mode of life to which he is condemned in these countries, be considered as a sort of analogous experiment. When we consider the great similarity that prevails throughout the whole division of mammalia, both as regards the minute structure of their component tissues, as well as the apparatuses for the great vital functions, it ceases to be a matter of surprise that under similar exciting causes, similar morbid results should ensue.

Tubercular disease, however, is not confined to mammals; it has been detected in birds, though, I believe but rarely; something very like to it has been seen in some of the reptile family; I am not aware of its having been seen in fish. I have never met with any example of it in this tribe, although I have paid some attention to the anatomy of this interesting class; and have found that they are very liable to be infested with entozoa and other parasitical animals. Mr. Newport believes he has detected tuberculous deposit in some of the insect tribe; in the larva of the sphinx ligustri, or privet moth, also in the ground beetle and others; and it is worthy of remark, that in some of these instances the food had been stale and of a deteriorated quality. It is more than probable, that the same causes which give rise to it in one animal, may be capable of producing it in all.

Whether tuberculous disease is equally frequent in animals, when left in the full enjoyment of their natural liberty and propensities, as in those who become domesticated, or subjected to artificial treatment, is a question which would require very ex-

tended observation to solve ; as far, however, as our experience extends, it may be answered in the negative ; and it may be added, that among these, just as in the human race, too refined attempts to change the natural habits, by altered diet, strict regimen, or confined, and we might add, luxurious and effeminate habits, may render them also more liable to degeneration, and to morbid action, than when left to the unrestrained exercise of the natural dictates of instinct.

As the study of comparative anatomy has extended and confirmed our knowledge of human anatomy and physiology, and has thus enlarged and secured the basis on which the science of medicine rests, so comparative pathology opens a wide and interesting field for inquiry, one which, as yet, has been little cultivated. The morbid action and structural changes which occur in the lower animals, are interesting and important to understand. The narcotic influence of the poison distilled from the duct beneath the serpent's tooth ; the equally fatal, though in effect less rapid, virus contained in the saliva of the rabid feline genus, and which can be conveyed from one animal to another, almost *ad infinitum*, involving all in one irremediable fate ; the secretion discharged from the nose and eyes of the glandered horse, and which is found capable of infecting man, and inducing in him the same fatal result, are awful facts to arouse attention to the diseased conditions of the inferior animals ; while again, a more interesting and agreeable example may be cited with the same view, in the discharge from the unhealthy ulcer on the nipples of the cow ; and which, through the unwearied exertions of the immortal Jenner, has been made the providential instrument of almost extirpating a most loathsome pestilence, or at all events, of depriving a painful and serious disease of more than half its terrors.

Although tubercles have been found in some birds, as the parrot and in some domestic poultry, I yet consider their occurrence as extremely rare, and shall, therefore, detail the particulars of a case I had lately an opportunity of examining, in which this

disease was extensively established in some of the great air-cells, and from the clear and open structure of the latter, many of the characters of tubercle were more distinctly seen than in those more complex tissues in which it is so prone to occur in the higher orders of animals.

The subject of these remarks was a very fine male specimen of gannett, (*pelicanus bassanus*,) supposed to be young. When brought to Dublin he was in vigorous health, and continued so apparently for a few days, frequently enjoying his favourite practice of plunging and diving in the deep; he also fed very well. He soon, however, began to decline in appearance, gave up bathing, remained listless and languid, lost his flesh and lively looks; his appetite, however, (for fish) continued, but still he daily wasted, and died in about a month from the date of his captivity. For some days previously he was observed to vomit occasionally, that is, if that act of discharging the cervical pouch, so often remarked in the pelican, can be so called, which, however, in the strict sense of the term cannot be so considered. No peculiar affection or impediment in breathing was noticed. I may remark, that I do not believe birds have ever been observed to cough or sneeze; indeed I should apprehend that from the peculiar arrangement of their respiratory apparatus, they are physically incompetent to make either of these convulsive expiratory efforts.

Dissection.—On raising the sternum I was at once struck with the number of yellow, white, or greyish tubercles with which the interior of the great air-cell on the left side was studded. The membrane, as it lines the ribs, (corresponding to pleura,) and thence extends as an imperfect septum between the thoracic and abdominal viscera, was thickly set with them. In size, form, and consistence, they presented every variety; some were small and circular as a pin's head, others as large as a sixpence, some were of an irregular or diffused form, but the circular shape prevailed; many were very firm, and almost dry, others more soft and pulpy to the feel,

and several were semi-fluid about their circumference: in many the centre was depressed, and as it were shrivelled in the form of a dry circular nucleus, while in a few the same part was very prominent and conical, but dry and apparently inorganic or horny. Those of the smallest size were of softest consistence, but even these consisted of the same white or yellowish matter. There were only two spots that presented any resemblance to the grey, semi-transparent tubercle so common on the human lung. Some of this numerous crop of tubercles adhered very closely to the membrane which may be supposed their matrix, others less intimately, and some were so loosely connected that I lost several when passing a gentle stream of water over the surface for the purpose of cleaning the preparation. The softening and separation in all cases extended from the circumference inwards; the connexion appeared a mere agglutition which a little maceration in water would easily dissolve; the surface of the subjacent membrane appeared free from any abrasion or abnormal appearance. The subject had been tolerably minutely injected, yet not a trace of blood-vessel could be detected either entering any of these tuberculous masses or connected to their base, and there was no vestige of inflammation, recent or remote. On submitting some of the detached tubercles to aqueous decomposition they soon resolved into the ordinary pasty or cheesy matter. I am unable to add any statement as to their chemical components, but from their general analogy to those in other animals, I should anticipate a corresponding result. There were two small tubercles on the pleura covering the upper part of the left lung, a few also were observed in the cellular tissue in the neck, and two were found on the surface of the base of the brain. I could not detect any in the alimentary canal, or in any part of the glandular system, secreting or lymphatic. I have been thus accurate in noticing all the physical characters of this tuberculous deposit, because in a disease of such importance we cannot be too careful in acquiring a knowledge of all its concomitant circumstances.

I purposely abstain from discussing the conflicting theories as to the true nature of tuberculous deposit, or entering upon the question, whether tubercle is merely a morbid secretion afforded from the blood by the vessels of the part, and induced by a peculiar unhealthy state of the constitution, or whether it is to be regarded as an independent or parasitical being.

My own judgment inclines to adopt the former opinion; many more facts must be adduced before the latter doctrine can be considered as established. I admit that in support of it much ingenious reasoning has been advanced, and analogy in some measure favours the hypothesis; doubtless of late years the labours of Ehrenburgh and others have brought to light most interesting facts concerning what may be regarded as the lowest classes of the animal kingdom; but I cannot reconcile to my mind the idea of an animal without some definite and regular form and structure, or without the possession of some degree of locomotive or contractile power, or destitute of the reproductive faculty. Has it been as yet established that pulmonary tubercles possess these three characters or not? Until this question can be fairly answered in the affirmative, I must adhere to the doctrine of tuberculous deposit being but a morbid secretion, while at the same time I admit that the reasoning and the facts adduced in support of the opposite opinion have sufficient force to allow the question still to remain *sub judice*.

I prefer offering a few remarks as to the ordinary seat of tubercle. Dr. Carswell, in his invaluable essay on tubercle, considers the mucous and serous surfaces, (the latter including the cellular tissue in general,) and the blood itself, as the exclusive seats of tuberculous deposit, but that "its seat of election is the free surface of the mucous membranes." While I gladly avail myself of this opportunity of expressing my great respect for the talents, industry and research of this distinguished pathologist, and gratefully acknowledge the benefits he has conferred upon this department of medical science, I yet feel jus-

tified in dissenting from one part of the foregoing statement, namely, that the free surface of the mucous membranes is the "seat of election" for tuberculous deposit. My own experience is decidedly in favour of the free surface of the serous tissues. In numerous instances of abdominal tubercular disease, I have, for one example of it on the mucous surface, seen several on the serous or peritoneal : indeed, in those cases in which the mucous membrane was engaged, it appeared as if the tubercular deposit had rather commenced in the sub-mucous tissue, or in its follicular or glandular texture, than been deposited on its free surface. In the thorax, how frequently do we find the small semi-transparent tubercle thickly set over the whole surface of the pleura parietalis, as also on the surface of that covering the lung. No doubt it will at once occur as an objection to this statement, that tubercles occur still more frequently in the pulmonary air vesicles, and that these are lined by mucous membrane. To the first part of this proposition I assent, but not to the latter ; that is, I fully admit that tuberculous deposit occurs more frequently in the pulmonary air cells and glands than in any other tissue in the body, but I by no means consider these cells to be lined with a truly mucous membrane. Minute examination of the pulmonary structure, even in man, will evince a marked difference in the organization of the bronchial tubes, even the most minute, and the air cells in which they end ; the former are lined by a soft or villous mucous membrane, which is coated by a thin mucous secretion, and if the organ have been minutely injected, its vascularity will become as obvious as that in other mucous surfaces ; not so with the air cells, their interior appears smooth and glistening, like the free surface of serous or cellular membrane ; and although numerous vessels are distinctly seen in the interlobular and intervesicular texture, yet the interior of the cells themselves is not coloured, and thus presents a remarkable contrast to the mucous lining of the air tubes. If the vessels of the lung be minutely injected, and the bronchial tubes inflated, the clear transparency of the air vesicles on the surface

evinces this deficiency of minute vascularity in their tissue, while it exhibits the numerous vessels ramifying in and around their delicate parietes in the connecting cellular tissue : again, the air vesicles, when carefully examined, are not found to contain any mucous, or any fluid secretion ; the membrane lining the bronchial tubes, therefore, must be the source of the mucus which is occasionally expectorated even in health, while the watery vapour with which the expired breath is always charged, is probably derived principally from the exhalant surface of the air-cells ; and in part from the evaporation of the fluids secreted by the mucous lining of the fauces and air-tubes.

The effects of acute disease also indicate, in some measure, a difference in the membrane lining the air-tubes, and that in the cells ; in bronchitis, the former are found loaded and obstructed with viscid mucus, while the latter, if cut into, will discharge a quantity of frothy, watery, or serous fluid ; the effects of the inflammation in either case being to increase and modify the natural secretion of the respective surface. In pneumonia, the tendency to adhesive inflammation, or to the infiltration of coagulable lymph into the vesicular structure, is only an analogous effect to that which is so common in other serous tissues, and contrary to what occurs upon mucous surfaces ; I might cite other examples of pulmonary disease to support the same position, but I fear to extend too far the limits of this paper.

If I inquire, why it is that the air-cells should be considered as mucous sacs so generally as they are, the answer I receive is simply this : first, because their lining membrane is continuous with that which lines all the air-tubes, which is confessedly of mucous character ; and second, because the cells are not shut cavities, as serous membranes are, but they are open sacs. Let us briefly consider these two reasons : first, is it an established fact that the whole of one continuous surface must be identical in function ? I answer not ; and in support of this assertion, point to the general investing membrane of the body, and the great mucous lining of all the viscera of organic life : these are conti-

nuous textures, yet they differ most essentially in their structure and function ; again, examine the whole trajet of the great gastro-pulmonary mucous membrane, contrast it in the nasal sinuses and on the spongy bones, in the mouth and fauces, œsophagus and trachea, in the small and in the large intestines, and the greatest difference will be found to exist in the organization, vascularity, sensibility and in the functions of this membrane in these different situations, although, throughout, it is one continuous surface ; it is surely then not contrary to analogy, to admit that the mucous lining of the bronchial tubes may cease to be such when it approaches and enters the air-cells ; and that in the latter it may present the appearance and perform the functions of serous or cellular membrane. Again, it may be said that mucous and serous membranes are never continuous : in reply, I refer to the open extremities of the Fallopian tubes, through which the everted mucous lining is continuous with the serous membrane of the abdomen. To this, however, it may be objected, it is true, that these tissues are continuous, but the mouths of the Fallopian tubes may be ordinarily so closed as virtually to establish a line of distinct separation between the mucous lining and the serous envelope : this is not improbable, neither is it unlikely that the muscular tissue in the lungs extends along the air-tubes as far as the cells, and at their opening both the mucous and muscular tissue may terminate so that the latter may be capable of exerting a contractile force at the point of communication ; a consideration of the functions of the lungs, as well as of certain phenomena in disease, does not suggest any fact repugnant to this idea. Secondly, are serous membranes necessarily shut sacs ? I consider not ; those in the large cavities are so, with the exception before alluded to of the peritonæum communicating with the mucous surfaces of the Fallopian tubes ; such an arrangement in these situations, as also in the joints, is obviously the best, in order to retain the required moisture or secretion, but no further. All admit that the cellular tissue is analogous in all essentials to the serous, yet its cells or serous

sacs are not close, but communicate freely with each other. Comparative anatomy also affords examples of serous membranes being naturally open, and communicating freely either with the external surface, or with the general cellular tissue of the body; thus, in one large family of fish, the peritonæum opens to the surface at either side of the anus, so freely that the water of the ocean can circulate among the abdominal viscera, as far even as the heart; an arrangement which is extremely interesting, and which, probably, allows the animal to alter its specific gravity at will, particularly as this class is deficient in the air or swim bladder; in all these, however, the peritonæum presents all the characters of serous membrane: again, in birds, the fact of an open serous membrane is still more obvious, and serves as a strong analogical support to the opinion now advanced as to the serous nature of the pulmonary air-cells. The respiratory apparatus of birds is one of the most beautiful arrangements in the animal creation; an example scarcely equalled, and certainly not excelled, as exhibiting a series of contrivances, adapted not only to secure all the requisites to the performance of a great vital function, but also to afford such peculiar mechanical advantages as are necessary for the habit, the wants, nay, the very existence of the being. The bronchial tubes open by large oblique orifices into the air-cells, and the latter communicate with the cellular tissue of the bones and intermuscular spaces. The great air-cells are thin and transparent, and although the mucous membrane from the bronchial canals is continued into them to form a delicate lining, yet, a total change of structure exists, and it immediately loses all the characters of a mucous, and assumes the properties of a serous membrane; these cells again communicate by equally distinct openings with the cellular membrane of the limbs and bones; thus, exhibiting a gradual transition from the mucous to the serous, and from the latter to the cellular tissue, and yet, a perfect continuity throughout. From these several facts, then, I think it is an error in anatomical and physiological language to say,

that serous membranes must be shut sacs, or that because the surface of an extended membranous texture is continuous throughout, it must therefore be identical in structure and function in all its parts. From these several considerations, then, I am led to regard the air-cells or the vesicular structure as much more allied to the cellular or serous tissue both in structure and in function, than to the mucous; and when I reflect upon the frequency of tubercular deposit on the free surface of the true serous membranes, and in the air-cells of the lungs, which I consider allied thereto in organization, as also its frequent occurrence in the cellular tissue, in the glandular, and in other systems, I am led to the conclusion, that tubercular deposit is more prone to occur on the free surface of the serous and cellular membranes, while, at the same time, the corresponding surface of the true mucous membranes is by no means exempt from it, more particularly in that portion of it which appertains to the re-productive organs.

ART. XIV.—*On the Treatment of various Diseases by means of Creosote.* By SIR FRANCIS SMITH, M. D., Fellow of the College of Physicians, &c. &c.

[Read at a Meeting of the College of Physicians held on the 18th March, 1837.]

THE announcement of the discovery of creosote, by M. Reichenbach, in 1834, and his strenuous recommendation of it as a therapeutical agent of great value, induced many of the leading medical men of France to experiment upon the subject. Creosote in its pure form, when prepared according to the directions of M. Reichenbach, is a clear, oily, colourless fluid, having a very penetrating smoky odour, and a specific gravity of 1.037. It combines sparingly with water, but in any quantity with acetic acid. It has been recommended in the treat-

ment of burns, and it is said to possess the great advantage of preventing deformity by the contraction of the cicatrices, a result which, if true, must give its use many advantages over any practice at present pursued. In tooth-ache the use of creosote has even in those countries already become popular ; but I rather think, the practice is one not founded upon sound principles, at least its indiscriminate use will lead to much disappointment. In cases where the nervous pulp of the tooth has become painful, either from caries or from accidental exposure to the atmosphere, the application of pure creosote may, from its known properties of coagulating animal fluids, and constringing vessels, after the first shock experienced on its application, produce a cessation of pain, but the relief will not be permanent, the caries will go forward, and the nervous pulp will again become painful ; and in all cases where the pain depends upon alveolar inflammation, creosote must prove worse than useless.

In different eruptions of a scaly nature, creosote has been found decidedly useful, and results the most favorable have followed its application to ulcers and solutions of continuity having a venereal or scrofulous origin.

From its known anteseptic properties, it has been recommended in gangrene. And in tubercular consumption and other affections of the lungs, its inhalation has been practised. In hemorrhages, both external and internal. In a case of the latter kind I can vouch for its partial good effects ; but I should much doubt its utility in tubercular phthisis ; although in that condition of the bronchial membrane in which the excretion is excessive, the exhibition of creosote vapour might, I think, have the effect of diminishing the discharge, and exciting the vessels to a new action.

British practitioners have generally evinced an indisposition to make early use of new remedies ; and their caution must, within certain limits, be considered worthy of praise ; but the excess even of a virtue becomes a vice, and as far as regards the

substance in question, practitioners have certainly been more backward than they should be.

Impressed with the necessity of subjecting so new a remedy to a severe scrutiny, ere I should venture to add my testimony in its favour, I determined in the spring of 1836 to make use of creosote in any cases in which I thought I could best test its efficacy; and my first trials were so satisfactory, that I have continued to make occasional use of it up to the present time. I may add, that it has always hitherto been as an external application that I have made use of it, although I am aware that in this town, one practitioner, at least, of eminence, Dr. Kirby, has employed it internally, and, as I understand, so as to answer his expectations.

From those cases I shall now state very briefly some in which I think the value of creosote as a curative agent is placed beyond a reasonable doubt; but I shall do so only in the hope that others more competent may be induced to experiment in the same field, and by collecting facts of a character either favourable or adverse, tend to enlighten us upon a subject which still possesses the charms, and perhaps I should add, the dangers of novelty.

I may here remark, that one source of discrepancy in results will exist in the difference of specimens made use of; the strength or concentration differing much both from the variety in the mode of preparation and purification, and also from the mode of preservation. That which I have always used was from the Apothecaries' Hall, of specific gravity 1,064, and nearly colourless; in many shops, however, I have found it of a greenish brown colour, the shade varying according to the specimen, and of a much higher specific gravity.

CASE I.—In the spring of 1836 a gentleman applied to me, whilst labouring under venereal disease in its primary form; he had phymosis, with a penis dreadfully swollen, and the outside of the prepuce covered with ulcers of a ragged phagedenic appearance, with a good deal of constitutional disturbance.

Some alterative doses of blue pill, in combination with morphia and tartar emetic, were prescribed, with soothing applications to the parts. This treatment had the effect, in conjunction with the recumbent posture, of quieting the constitution, and diminishing the tension of the parts. But every mean was tried in vain to cause the ulcers to heal; they still preserved their phagedenic character, and at length united into a zone, nearly surrounding the prepuce, and threatening its destruction, with the probable risk of further mischief. Under those circumstances I determined to make trial of the creosote; I applied it pure, with a delicate pencil, to the surface of the ulcers, and my pleasure was not greater than my surprise, to find that by the next day the sores had put on a most improved appearance, and had actually contracted a full third of their diameter; and in six days more, being lightly touched each day, were entirely healed.

In this case, had the improvement been less sudden, I might have been inclined to attribute it to other causes; but the effect followed the application of the creosote so rapidly, as to leave no doubt upon my mind as to the source of benefit. I may add, that the pain produced, though vivid for a few seconds, did not continue, and produced but little irritation in the surrounding tissue. This case I detailed at the time of its occurrence, at a meeting of the Association of Physicians.

CASE II.—The next case which I shall mention, was one in which I found the creosote answer my expectations equally well. It was a case of fistula in ano, occurring in a young gentleman of twenty-one years of age, of a very broken down constitution, having but just recovered from constitutional bubo in the groin; under which he had laboured during more than four months, and in which I had had to make seven openings at different periods, to give exit to collections of matter. The abscess had been evacuated, after much pain and disturbance of the system, by a natural opening; but I was not informed of this new ailment, till some days after this had occurred. I then found the gentleman much lowered by the sufferings he had gone

through, and considerable irritation existing about the anus. I at once ordered stupes and the steam of warm water and poppy heads to the parts, with a few sedative doses of morphia and hyosciamus to be taken internally. The following day I was enabled to make an examination per anum, and with a probe; within three lines of the anus, on one side, I found an orifice through which the matter, which amounted to an egg-cup full had been evacuated; and on passing in a probe, I found it to enter about one inch, passing upwards, and resting upon the side of the gut; on further investigation, I found that the sinus branched about midway its course into another cul de sac, which passed rather away from the gut, and presented to the probe a rough, yielding, spongy sensation; at the opposite verge of the anus an inflamed pile existed. Under those circumstances, I continued the soothing system; attending to the bowels, and giving a light tonic to bring up the constitution, hoping that in this case, as I have occasionally observed in similar ones, nature might effect a cure by her own efforts. This expectation, I however soon found was not likely to be realized, as the sinus, when the first irritation had subsided, began to discharge a thin, lymphic fluid; and continued to present to the probe the same condition as to depth and state of parietes as at first; whilst the patient and his family became anxious that something should be done. At this stage of the case, and whilst I was feeling reluctant to subject a nervous and debilitated patient to an operation, the name of which is accompanied with so much of terror, I happened to mention it to my gifted friend, Dr. William Gregory, who strongly advised my using creosote; to this I was at first indisposed, but already aware how great an influence I had seen it exercise in contracting and healing solutions of continuity in the dermoid structures, I conceived it would be justifiable to try it in this instance. Having made up my mind to the course I should pursue, I carefully introduced to the bottom of each cul de sac, a very small dossil of lint smeared with creosote. The pain was excessive, but very rapidly subsided.

The patient was placed in a large linseed poultice, and on seeing him again the following day, I was delighted to find that the spongy, irregular bottom was succeeded by a more firm structure. In two days I again introduced the creosote as before, and in a week had the happiness to find the fistula diminished to one-half the depth; both cul de sacs merged into one, and the probe not going within three lines of the gut. Four more applications, spread over a fortnight, had the effect of bringing down the sinus to the surface, the health of the gentleman gradually improving, and two applications of red precipitate to the surface of the now granulated sore, produced a complete cure.

In this case, from the very depraved condition of the constitution, from the little restorative action it had exhibited in the disease in the groin, and from the sinus not having evinced the smallest disposition to contract till the application of the creosote, we may, I think, fairly attribute to that agent the rapid and immediate progress the case made.

The next case which I shall adduce as testing the utility of creosote in correcting diseased action, was that of a lady affected with ulcers on the septum narium.

It is known to practitioners how very intractable those ulcers often prove, and in the case to which I now refer, they had existed for some months; having appeared towards the conclusion of a very copious catarrhal defluxion from the Schneiderian membrane.

CASE III.—The lady, a scrofulous subject, had been submitted to treatment by two practitioners of eminence, and had undergone an alterative course of mercury, had been subjected to the influence of iodine, and had had the ulcers touched with solutions of sulphate of copper and of nitrate of silver, and at last with the solid nitrate. I determined to abstain in this instance from any treatment whatever, except the local application of creosote. The ulcers amounted to four, varying in size from the head of a pin to the section of a very large pea; three on one side of the septum, and one (the largest, and the first which had made

its appearance) on the other side. They possessed the peculiar characters which those ulcers generally assume ; appearing to entirely sink through the lining membrane, and to rest upon the cartilage or bone ; which, however, I believe they rarely do, except in very advanced cases.

I at first made use of a wash, consisting of one part creosote, with sixty of water ; in which proportions they unite at common temperatures ; the wash to be snuffed up the nose frequently in the day. The odour was complained of as very disagreeable, and at the end of two days, I was disappointed by finding that I had made no progress in improving the appearance of the ulcers. I now determined to apply the creosote in its pure form, and began by pencelling the edges of the ulcers with a brush smeared with creosote, and directing the patient to inhale the fumes of acetic acid for a few seconds subsequently. The application of the pencil was rendered easy by firmly grasping the ala nasi, and drawing it outwards ; and I advised the inhalation of the fumes of acetic acid for two reasons : first, because acetic acid is the proper solvent of creosote, and would, by being inhaled immediately after its application, have the effect of rendering its action more equable and uniform ; and secondly, because the odour would tend to counteract the disagreeable fuliginous flavour of the creosote. The next day I had the gratification to find the character of the ulcers improved ; the edges were much less abrupt, and I now determined to apply the creosote lightly over the whole of the ulcer on the left side of the septum, and to brush those on the right side with a solution of creosote in twenty parts of acetic acid ; and I continued to do so on alternate days for a week, at the end of which time, the ulcer on the left side of the septum was reduced to a mere point, having every appearance of immediately healing ; whilst those on the right side, though improved in appearance, having smooth edges gently declining towards the centre, still preserved their original dimensions. I now applied to them also the pure creosote, repeating the application on alternate

days, accompanied with the inhalation of the fumes of acetic acid. The rapidity with which the ulcers now healed was truly wonderful. That on the left side, to which I first applied the creosote in a pure state, was completely healed in ten days; and those on the right side, in six days after the first application of pure creosote, and sixteen from commencement of treatment.

From this case, it would appear, that creosote possesses the power of healing solutions of continuity in mucous membrane; and that with great rapidity, and in cases where all other treatment has proved unavailing. We also gather, that it is most to be relied upon, in its pure state, for the treatment of small breaches of continuity; although, it possesses a decided action when dissolved in acetic acid, in the proportion of one part to twenty; but that the solution of one part in sixty of water, though preferable for use where the surface is large, was found quite useless in the instance before us.

If I did not feel that this paper has already extended beyond the limits I had intended, I would adduce cases of *tinea capitis* and *cancrum oris*, in which I have made successful use of creosote. In *tinea capitis*, I am almost inclined to consider it a specific; but although I succeeded in curing *cancrum oris* in a child of three years of age by its use, I am not prepared to say that other means might not have succeeded equally well; and, at all events, I think its indiscriminate use in the mouths, or on the soft tissues of children, injudicious, as its constitutional action, even in very minute doses, is extremely active.

From the observations I have had an opportunity of making upon its effects, I should be inclined to expect good results from its application in cutaneous cancer; and from its favourable influence in healing solutions of continuity in the skin and mucous membranes, I should be inclined to hope for decisive benefit from its employment in breaches in the urethra, whether congenital or accidental. And from its very rapid and decisive effect upon small ulcers in mucous surfaces, as well as from its

producing so little of continuous irritation, I think it may prove useful in ulcers of the cornea, particularly those of a chronic character. I shall now conclude this subject for the present, not with a sweeping eulogium upon the merits of the agent whose effects I have been referring to, but with an invitation to other and abler observers to bring it to the test of experience on a large scale ; as in that way alone the profession can obtain such data as will enable them to arrive at a safe and secure judgment upon a subject, which is still too little understood.

BIBLIOGRAPHIC NOTICES.

Observations and Remarks on Hypertrophy of the Mammary Gland. By Dr. FINGERHUTH of Esch, near Enskirch, Government District of Cologne. Translated from the *Zeitschrift für die gesammte Medecin*, by S. L. L. BIGGER, M. B., L. R. C. S. D.

THIS enlargement of the breast, which ordinarily does not consist in the formation of new products, or in a change of structure in the mammary glands, but solely in an enlarged formation of the separate acini, and a more extensive collection of fat in the cellular tissue, is characterized by a constant, uniform, and increasing mass, free of pain. I distinguish two forms, viz:—one which runs its course quicker, and is always a disease complicated with and occurring synchronous with puberty; and another which develops itself more slowly, advancing by hardly perceptible growths, and which is principally affected by disturbance in the functions of the generative organs. At present, I will only enter on a nearer explanation of the first form. The course and appearances in this form are:—The mammary gland enlarges, usually the right, rarely both at the same time, preceded by a prickling sensation, accompanied with irritability in the affected breast. The swelling extends uniformly over the entire breast. This ailment always occurs at the period of puberty, and with the development of the breast. Usually the persons affected have not menstruated, or if the menses have appeared, they flow sparingly, are of short duration, and soon cease, never to re-appear. We remark at this period a quicker growth of the swelling, at the very time when the monthly period has ceased, and very often the patients complain of a sensation of increased tension, which, however, becomes less at the cessation of this period, and the accelerated growth of the hypertrophying organ returns to a more slow and steady progress. Sometimes now, also the voice, undergoes a peculiar change; it becomes rough, hoarser, somewhat double: this may last many days, then

disappear, and return again, without any decided alteration being discoverable. In one patient I remarked, that this hoarseness occurred at the menstrual periods, although the menses had ceased; on the other hand, in another patient, I did not remark this change of voice at all. On examination, we see that the nipple has become flatter and broader, and the areola surrounding it attained a greater extension; the tumour at first gives a sensation of tightness, without the colour of the skin as yet, having suffered any change. Later, when the breast has acquired a more remarkable size, to a superficial examination it appears softer, and it is only by a deeper pressure of the examining finger, that those hard-feeling and enlarged acini of the mammary gland are to be met with. At this period we find the veins in the surrounding skin more extended, and the breast assuming a somewhat bluish tinge, yet, without a remarkable change of colour. Thus, this disease continually advances, and according to circumstances, tolerably quickly; the affected breast acquires an immense volume, extending to a length of from 18 to 20 inches, or more, with a circumference of from 20 to 24 inches, weighs from 10 to 12 lbs., and renders motion difficult to the patient. The perspiration, as well as the blood freshly drawn, has a peculiar odour, and the latter contains much free carbonic acid.* According as the swelling, through this excessive growth of the gland, advances, the rest of the person grows thinner by degrees, and by comparison, the affected breast appears to increase more rapidly in its enlargement. Later, the organs in the cavity of the thorax are forced to sympathize; now comes difficulty of breathing, with tightness in the chest; then cough, at first dry, but afterwards accompanied by frothy sputa, sometimes mingled with streaks of blood. The strength disappears, hectic fever follows, and death, from general exhaustion, sometimes preceded by the symptoms of hydrothorax. However, the further progress of the disease often differs from the picture now given, and in respect to its termination, offers many deviations; for this swelling may arrive at a certain stage of development, and there remain stationary for a series of years, without the interference of art; or, during the whole life-time of the individual, with no further disadvantage to the general organization, than what is necessarily endured from the enormous volume of the breast.

* 3xvj. received in vacuo, contained 1,002 free carbonic acid. I obtained similar results from patients labouring under asthma and chronic bronchitis; on the contrary, the blood drawn from those suffering from abdominal and nervous diseases, in general, contained only a small quantity, and often no trace whatever of free carbonic acid.

The terminations of this disease are threefold, viz :—

1st. In recovery. The swelling leaves the heart ; yet the part, once tumefied, never returns again to its normal volume. Recovery is therefore only so far to be called perfect, as that the growth of the mass is fixed at a certain point of development, and the safety of the general health no longer endangered.

2nd. In another disease. In as much as effusions and cysts may form in the interstices of the enlarged glandular swelling, as consequences of the excretive activity. I remarked the following case :—

L. W., 23 years of age, of delicate constitution, had a swelling in the breast, unaccompanied by pain. This tumefaction, which had existed many years, without any known cause, and had gradually increased, commenced, ten months ago, to grow more quickly, and reached, in a short period, such a size, that the patient was obstructed in her ordinary pursuits. A sensation of tension, or dragging towards the axilla and shoulder of the right side, caused the patient often to lie down, and thus the burdensome sensation caused by the weight of the enlarged breast was lost by degrees. As the different medicines employed by the advice of her physician were of no avail, she determined to leave the disease to nature : she did so for ten months. During this time a change occurred in the tumour ; it enlarged more quickly, and seemed to become soft in the centre ; and as matter was suspected to exist, so different poultices, one after another, were applied, which did not cause the wished for bursting of the abscess, nor render the tumour more soft. At this period I first saw the patient. The circumference of the swelling was then twenty-six inches ; it was uniform, and presented to the touch the characteristic marks of hypertrophy ; nearly in the mesial line, but somewhat inferiorly, I found a spot tinged somewhat bluish, in which fluctuation was manifest. Now, as well as during the entire continuance of the disease, the swelling was without pain. The spirits of the patient were lively : however, her constitution was seriously affected during the last two months ; she had lost flesh, and complained of squeezing about the heart, loss of appetite and tightness of the chest, with dry cough. As I could entertain no hopes in this condition, except from extirpation of the diseased breast, I proposed the operation to her. She rejected it ; nevertheless, she demanded, if not a perfect cure, at least alleviation : wherefore I determined, anxious to ascertain the nature of the contained fluid, to make a puncture into the fluctuating point. No sooner said than done ; and in the same moment, from three to four ounces of a yellow serum flowed out. After this evacuation, the swelling had lost something of its bulk ; and in the hope of

causing adhesive inflammation of the walls of the sack, and of thus stopping up the source of a further collection, I endeavoured to employ a gentle pressure on the affected part, by means of a bandage passed over it. However, no continued pressure could be borne; the incision soon closed, and after four weeks the collection of serum was, as before, in the interior of the gland. Wearied with the unsuccessful attempts of art, the patient now rejected all other efforts to affect a cure, and dragged on a languishing existence for five months more, when she died perfectly exhausted. At the post mortem examination, the tumour of the mammary gland proved to be hypertrophy with its characteristic structure. In two places the body of the gland had become firmer and harder, and near them two simple cysts existed, filled with yellowish serum, which were probably formed by the enlargement of some cells of the cellular tissue, from which the communication had been cut off.

3rd. In death. As this disease never gets well without the aid of art, or remains stationary at some certain point of its first development, so, when left to itself, it will always advance in its abnormal growth; then death may occur when atrophy comes on, and the organs of the chest sympathize, either by means of abscesses in the air passages, hydrothorax, or phthisis accompanied by hectic fever.

Anatomical Details.—The internal structure of the mammary gland is, with few exceptions, unaltered; and despite of the extensive growth in the whole, and the increase of volume of the separate acini, the latter do not exhibit any deviation from the natural structure. The cellular tissue is looser, its cells larger, and we commonly find much fat accumulated within it. The arteries do not exhibit any change, either in structure or dimension. On the other hand, the internal milk-vessels are swollen, increased in size, and the veins are always remarkably enlarged, and sometimes altered in structure. The nerves have not become smaller or thinner; yet their size, compared with the magnitude of the hypertrophied gland, makes them appear diminished, although retaining their original size. Yet, where the nerves are harder and firmer, we find that the nervous mass has lost some of the medullary tissue. In the hypertrophied breast we find the growth of the mass, the increase of volume, and the increase of the absolute weight, and in the same proportion as the mass increases, so also does the absolute weight; it is not so with the specific weight, as is well known to occur in inflammations. With this also combines the remarkable formation of venous blood-vessels, and enlargement of the veins, whilst the arteries retain their normal size; and although we cannot give the reasons for it, yet is it nevertheless a fact, that

the organs best supplied with venous blood, are those most disposed to hypertrophy; and that in the parts affected with this morbid growth, the mass of venous blood-vessels arising from enlargement of the veins, increases in the ratio of the growth of the swelling, and the increase of volume, and *vice versa*.

CAUSAL RELATIONS.—Hypertrophy of the breast, which occurs as a morbid complication with puberty, appears to be indebted entirely to the internal predisposing moment of illness for its existence; if one examines the close relation in which the mammae stand to the generative function, the feeling of tightness, sometimes accompanied by difficulty of breathing at the time of menstruation, and even perceivable swelling, and increased activity at this period:* all which symptoms denote to us the increased vitality of the breast, and the powerful change which is effected in it, at the period of puberty; however, it cannot be denied, that every thing which increases the formative activity of our organism, at the time of the general development of sex, and the vitality of the generative function particularly, can be regarded as other than favourable to the excessive development of the breast, of which we speak.

However, it cannot be passed over, that with this prevailing disposition, also other influences come in play, so as actively to work on this morbid formativeness, and thus favour its quicker growth and development, although we are not always able to point them out in particular cases. Amongst these predisposing causes I reckon:—

1st. That young ladies at this epoch are in the habit of indulging in too irritating and heating food, both solid and fluid; which, however, without powerful predisposition, could only cause a quicker development of the breast, but also under other circumstances, if they could not directly cause, yet they are capable of influencing most favourably the morbid irritability, excessive development, and hypertrophy of this organ.

2nd. Much handling of the breast, &c. Such manipulation can certainly favour the quicker development of the breast; also through the continued irritation, which calls forth not only an increased activity in this organ, but also makes the appetite for procreation much too alert; which reacting again, through organic sympathy, increases the vitality of the breast, and may also call forth and support a luxuriant formative activity in it, and thus induce an hypertrophied growth.

* Thus, we often remark at this period the issuing forth of some drops of serous fluid from the nipple, which can serve as an evidence of nothing but an increased activity of the gland.

3rd. To this class belong, sprinkling and copious washing of the young breast with scented waters, with ætherial oils, or other irritating substances dissolved in fluid.

4th. Finally, some observations attest that pressure or a blow might be the cause of this disease of the breast; particularly when an improper treatment has been employed; as also, a prominent scrofulous tendency may favour it.

TREATMENT.—The treatment of this disease is either radical or palliative, according as the disease appears advanced in a greater or less degree, or according as the circumstances of the patient or other weighty consideration may determine us. To accomplish the first, two means present themselves; first, the plan of derivation, of repressing the excessive productive activity; second, the extirpation of the affected part with the knife. The period of the greatest importance for the accomplishment of the first, so as to effect a cure of the hypertrophy, is that in which the disease is perceived at the commencement of its development; the moment at which the patient, at the time of menstruation, perceives a prickling, and sometimes squeezing feel, with fulness in the affected breast, or when these symptoms do not appear, still a greater increase of volume at this period takes place in the affected breast, which marks the critical period when art, *cæteris paribus*, may effect a cure. When, on the contrary, the menstruation has not yet appeared, the commencing increase of the gland is the only circumstance which can point out this rarely remarked period, when with tolerable certainty the malady, by powerful medicines, may be obviated. In sanguineous, strong, well-fed subjects, and particularly in those in which there is a tendency to congestion in the breast, the antiphlogistic plan is indicated. For this purpose, we are in the habit of ordering blood-letting from the foot as a derivative; internally saltpetre, with the application to the swelling of camphor, a substance which acts most favourably, a meagre vegetable diet, and attention to lessen all influences which might favour the excited formative activity in the affected part. It is very rare for persons affected to seek medical aid at this epoch, but ordinarily when the swelling of the breast has advanced to a remarkable degree. At this time we are obliged to apply our remèdes to the affected part, in order to produce diminution of the swelling, and if not a perfect, at least a partial cure. Under these circumstances, the better fed and the more plethoric the individual is, the more applicable will be the antiphlogistic treatment recommended above. Besides a low vegetable diet, one must particularly regard those influences which are connected in any way with the causes which support the disease. As medicine, use may be made of iodine, and

burned sponge internally; externally, rubbings in of an ointment of iodide of kali, or hydriod. of mercury, and causing the parts affected to be covered in the intervals with cloths, impregnated with camphor. From time to time, from six to ten leeches should be applied, in order to favour the absorption of the iodine. This treatment may be continued for three or four weeks, we then make a pause for two weeks, during which period a somewhat better diet, but at the same time, one easily digested, may be given; especial care being taken that the patient does not overfeed herself. Then the treatment pursued before may be had recourse to again, and be continued for some weeks. In the internal administration of iodine, one should go cautiously to work, in order to moderate, direct, and set bounds to its very different action in the whole animal economy under various circumstances. Even when the peculiar symptoms, described by Coindet, as resulting from the secondary effects of iodine, are observed, still it should be persisted in: then the iodine disease appears, accompanied by symptoms of weakness, sudden emaciation, nervous irritability, sensations of numbness, and trembling in the limbs, palpitations, dry and frequent cough, &c., on which cachexia, dropsy, and consumption may supervene. However, it is said, that if the use of the iodine be omitted when those symptoms of a general affection of the system appear, that then the evils caused by it disappear without causing any mischief. I must, however, confess, that I have not always seen the evils resulting from over-administration of iodine to disappear.

Should symptoms of poisoning by iodine appear, from having given it either too abundantly, or in too large doses, then, of necessity, the employment of it must be immediately set aside. Under such circumstances, copious diluting drinks should be given, such as sugar water, mucilage, and when the symptoms have become less violent, recourse should be had to antiphlogistics to a greater or less extent. The camphor emulsion may be given most advantageously on the disappearance of the iodine symptoms, combined with the treatment we have just mentioned; and we may the more expect good results from it, if the inflammatory symptoms have come on under the influence of cold or atmospheric exposure. As in many persons, the so-called iodine symptoms appear remarkably, after the internal use of that medicine, and in much shorter time than after its external application, this reason caused me to prefer employing the ointment, and also baths impregnated with that substance, in those cases treated by me at a later period. However, this does not always succeed in effecting the desired recovery.

Starting with the idea, that excitation or promotion of the secretive activity in the affected organ, when the excessive formative activity had been limited, if it might not only set aside the present evil of itself, yet might serve essentially in support of the curative means employed, I now applied my endeavours to excite activity of secretion in the affected mamma. However, I could not conceal from myself the difficulties opposed to this, and my first experiment to effect it almost turned the scale of my hopes; because, that through the means used to the breast which had for their object the production of the milk secretion, the swelling of the organ was increased. However, the sequel showed me that this growth was only transient, and that it was the consequence of the mammary gland's increased function. The guiding treatment was assisted by the external application of iodine, by ointment and baths; and if the observations on the cases which follow can be deemed conclusive, then I would feel myself disposed to esteem the calling forth of the milk secretion, as an essential adjuvant in the cure of hypertrophy of the mammary gland.

If the hypertrophy approaches nearer to its full development, or is already fully developed, still we may expect safety for the patient, and a cure by extirpation of the diseased gland. If, in addition to this, the whole constitution is violently affected, the patient will be remarkably reduced in strength by the longer employment of those means. If the organs in the cavity of the chest are affected, and if, in addition, lowness of spirits and dejection overwhelm the patient, then most certainly a more prolonged employment of the curative means we have just mentioned would lead rather to the grave than to recovery from this wearisome disease. It is only when the patients feel well in bodily health, when their constitutions are not at all affected, and when no medical treatment has previously been applied for the cure of the hypertrophy, that any one should employ the remedies before mentioned, and he may promise himself so much the more favourable action of the same, if the milk-secretion is in a condition to be called forth: but the longer the evil has already remained, and the more the function of the gland is deferred, at the expense of its excessive formative activity, and prevented by our treatment, so much the greater are the difficulties which it offers. But, if this be now all of no avail, and if you do not determine on extirpation, as the now only means of relief, then the palliative treatment must be had recourse to.

In reference to this, we recall the following as the results of experience:—

1st. That the diseased breast should be supported in a suspensory bandage, and that every thing should be avoided by

which it might be pinched or squeezed, or in any way irritated.

2nd. That the se and excretions should be encouraged, and care taken to give moderate exercise in pure open air, and that no function of the body should be deranged.

3rd. That light and digestible diet be ordered, particularly from the vegetable kingdom; and in addition, that every thing should be done by suitable conversation and amusement to keep up the spirits of the patient, to excite new hopes, and to make the decline of her days endurable.

1st Observation.—E. B., 17 years of age, had for a year a painless swelling of the right breast, which had increased remarkably during the two last months, by which rendered uneasy, she sought medical advice. She had often perceived, at the menstrual epoch, an oppressive sensation of fulness in the affected breast. The temperature in the affected part had never altered, and no pain was felt. At an earlier period the disease had been contended against by a physician, with little interruption, by various medicines. Thus, mercury for a long time, even to salivation, later burned sponge, were given, and repeated applications of leeches, and spirituous fomentations, employed: all this treatment had no favourable consequences; the swelling grew continually larger, so that, at last, when I first saw this patient, it had attained a size almost double that of the still healthy left breast. On examination, the following symptoms were found the swelling was every where soft, not strained, free from pain when moved, and, on a deeper examination, felt uneven, yet not knotty. The manifest unevennesses presented to the touch, were not hard, yet they afforded a tolerable resistance. They were the acini of the gland grown many times larger than natural, and causing on increased pressure a disagreeable sensation to the patient. At the period of the yet-appearing menstruation, the swelling of the breast increased very rapidly, causing a sensation of pressure and a sense of heat, which, however, did not annoy the patient. This suddenly increased swelling, on the cessation of menstruation, returned almost to its former volume; with it, also, the sense of heat and pressure disappeared. The cutaneous veins of the affected part were enlarged, and gave the breast a bluish appearance. In other respects the colour and heat did not differ from the normal state. The areola was large, somewhat dark-coloured, the nipple normal; the patient was strong and full formed, her constitution good, and her bodily health, in other respects, undisturbed. The unsuccessful administration of burned sponge, given at an earlier period, left little hope for the administration of iodine; however, I determined, before having recourse to

any other remedies, to try the external application of it in the form of ointment, therefore, I caused an ointment of the iodide of mercury to be rubbed into the breast, in combination with local depletion. After twenty-four days' application, I found no results which could tempt me to pursue its use any longer. The patient being uneasy at all the hitherto useless attempts at cure, determined me to introduce the practice above mentioned. Great difficulties were presented to the exciting of the milk secretion in the breast; however, I did not allow myself to be terrified, under these circumstances, from attempting a cure. Fully fourteen days my endeavours were without fruition, until at last, on the sixteenth day, some drops of a disturbed watery-looking fluid flowed from the nipple into the breast-bottle (Schröpfkaph) which had been applied for this purpose. By these endeavours, which, without doubt, must have acted as irritants to the gland, the swelling increased somewhat, and the patient often complained of a peculiar dragging or tightening sensation in the affected breast, to which commonly an increased sense of heat, called by the patient flying heat, (fliegende Hitze,) succeeded, but quickly passed away; during this period the breast was free from pain. The secretion of milk increased so much, that the breast-glass was applied twice daily, with success, and in the course of three weeks the tumour of the breast was retracted in size, not remarkably, but really. I now ordered an iodine bath to be taken every five days, the breast to be supported by a suspensory bandage, and as the se and excretions in other respects were regular, I gave no internal medicines, but caused the before mentioned vegetable diet to be adopted, and ordered gentle exercise in the open air; this treatment was regularly continued for four weeks, and I perceived now that the swelling caused by the means used to excite the milk secretion had remarkably diminished. The sensations hitherto experienced by the invalid of dragging, and tightness, and fleeting sense of heat in the affected part, had disappeared by degrees, and had given place to an inconstant feeling of fulness, only occurring when the breast was full of milk, and at stated times, causing the patient to demand the use of the breast-glass. The baths of iodine were continued, (now one every tenth day,) and no change made in her diet. Many weeks after this, the secretion of milk had completely ceased, principally on account of the aqua amygdal. amararum, which had been employed to attain this end, and the breast had contracted nearly to its natural size; still in measurement from above to the nipple it exceeded the left sound breast by an inch: I therefore ordered the iodine baths to be discontinued; lately they had been given at greater intervals: at this time the areola was more darkly coloured, and extended more

widely than usual. Nothing abnormal was discoverable to the touch in the mammary gland.

CASE II.—M. K., sixteen years of age, delicately formed, of sallow complexion, but healthy constitution, consulted me in the spring of 1833, on account of a painless swelling in the right breast which she had had for eighteen months. She attributed it to a squeeze received in stooping over a balustrade. She applied leeches; the swelling remained as before! on the contrary, the circumference seemed much increased, and its former round form was changed into a somewhat elongated one. Despite of this, no pain occurred: at this period she applied to an homœopathist for advice, who prescribed the medicine, which to him appeared proper for her condition. Hereupon, she was amused, during two months, with eighteen drops of something given daily, and by the weekly application of compresses, impregnated with one drop of some powerful medicament. Advised by a female friend, who, in a similar case, had found it useful, to make repeated applications of leeches, she now applied, during three weeks, every five days, four leeches, without the swelling being yet at all diminished. Now she sought assistance from a physician, who, sifting out the probable causes of her state, prescribed spirituous fomentations, an ointment to be rubbed in, and internal luxatives. She derived no advantage from these, as the swelling grew continually. Almost despairing of recovery, she determined to leave the disease to nature, and did so, until the term of the next occurring menstruation (more than three weeks). However, at this time, remarkable alterations took place in the swelling, it grew faster, increased remarkably, became more flabby at its upper border, whilst the inferior part of the tumour became greatly enlarged in circumference. Sometimes a sensation of dragging and fulness occurred, which, however, quickly disappeared again. Besides, to these sensations of weight and fulness, there was also added, a fleeting sensation of heat, which last would often be absent for whole days, but would return without any particular connexion to day or hour, and perhaps only for a moment.

Under these circumstances I saw the patient. The disease had continued, as well as she could recollect, for nearly eighteen months, and, omitting the accidental circumstances just related, had caused very little uneasiness. I found the affected breast almost twice as large as the sound one, and all the symptoms already described. Her general health was good; the vital functions regular, with the exception of the menstrual flux, which, during the last two months, had become scanty and irregular, and as a consequence of the former purgative treatment, now came constipation. The invalid was of warm disposition,

and easily excited, which gave to all her motions and actions an anxious haste. This complication prevented me from entertaining any doubts as to the nature of the disease in the affected breast ; but what was to be done ? The means of treatment hitherto employed in other cases with success, offered here, on the part of the patient, difficulties which I could hardly hope to set aside so easily. The excessive irritability of the patient, her excited condition, caused me to entertain doubts of accomplishing the plan of treatment laid down before, to induce the cure of this disease by calling forth the appropriate activity in the affected gland. I ordered, to counteract the pressing symptoms of costiveness, the oil emulsion, and caused baths impregnated with iodine to be employed twice a week. In addition, I recommended a mild diet of simple vegetables, enlivening society, and moderate exercise in the open air. In the course of fourteen days, the excitable condition, and the great irritability had decreased, the patient was lively, felt herself better, and now I dared to think of employing my proposed plan of cure. By degrees I sought to excite the appropriate action of the mammary gland, and, when once called forth, to keep it in steady activity. This, contrary to my expectation, I accomplished in three weeks. The iodine baths, which had been omitted during this period, I now again caused to be employed twice in the week, besides to take active exercise in the open air, but that no change should be made in the diet prescribed previously. I caused this plan to be pursued without deviation, and saw, with pleasure, that the swelling of the breast, after seven weeks' treatment, had lost an inch in circumference. Thus, under the introduced and continued practice it diminished more and more, and after eleven weeks I was enabled, by little and little, to stop the secretion of milk, and to allow a somewhat stronger diet in lieu of the simple mild one. The iodine baths were in the mean time continued ; the swelling gradually diminished ; and although the right breast was as yet somewhat larger in bulk than the healthy left one, still I thought proper to resign what remained to the curative powers of nature. In accordance with this, all medical means were laid aside, the patient again assumed her accustomed course of life, and as some slight enlargement yet remained in the affected breast, I recommended particularly avoidance of pressure and every irritation to the affected part. I expected to see this trifling swelling lessened after some time, but the affected breast always remained somewhat larger than the healthy one ; and also an attempt at cure, at a later period, failed in producing any reduction of the enlargement.

Observations on the Surgical Pathology of the Larynx and Trachea, chiefly with a view to illustrate the Affections of those Organs which may require the Operation of Bronchotomy: including Remarks on Croup, Cynanche Laryngea, Injuries by swallowing Acids and Boiling Water, Foreign Bodies in the Windpipe, Asphyria, Wounds, &c. By WILLIAM HENRY PORTER, A.M., Vice-President and Professor of the Theory and Practice of Surgery in the Royal College of Surgeons in Ireland, Surgeon to the Meath Hospital and County of Dublin Infirmary, &c. &c.

WE have much gratification in announcing the second edition of Professor Porter's work, and have no hesitation in declaring our opinion, that it is one of the most useful and complete monographs published of late years in Great Britain.

To make our readers acquainted with the author's views in publishing a second edition, we must be permitted to quote his introductory remarks :

“ The first edition of this work was published at the request of several students; and the reasons that induced the author, then a comparatively young and inexperienced practitioner, to comply with their solicitations, were fully explained at the time. They may be shortly enumerated as follow: viz.—First, The want of any continued and detailed account of the operation of Bronchotomy, and the causes that may render its performance necessary; for, though abundance of valuable information on these subjects exists in the works of different authors, and more particularly in various periodical publications, yet the labour of research, and of collecting and arranging and reconciling different opinions, is more than ought to be expected from a student, or than he could by possibility succeed in. Secondly, The total absence of pathological facts and observations; and, Lastly, That which might be considered as a necessary consequence, the indecision and uncertainty that prevailed in the treatment of these cases. In fact, the operation of Bronchotomy was, and perhaps is still, too often a matter of experiment, resorted to for the purpose of giving a patient a chance of life, when every other remedial measure had been tried and found unsuccessful. Indeed, to a certain extent this is unavoidable; for the pathology of the larynx and trachea, however improved, is still imperfect, and many cases occur that baffle our expectations and disappoint our preconceived opinions: yet must the attempt to arrange the diseases of these organs into pathological order, and explain the peculiarities observable in each, prove useful; for it is only on such a basis that scientific surgical practice can be established. Every mode of treatment, however successful, every surgical operation, however splendid in its results,

if undertaken on other grounds, can only claim the praise of fortunate empiricism.

“Perhaps, of all the operations in surgery, Bronchotomy is the one which in its nature and results has been least understood both by the profession and the public. As to the causes that render it necessary, and the time when it should be performed, the opinion generally inculcated is, that in any case where it is likely to prove necessary, the earlier it is performed the better; and the records of surgery shew that many individuals who were suffered to perish in a miserable state of suffocation, might have been thus preserved. But the practice is not that which should follow from such doctrine. Useless and unavailing efforts are made to check a disease too often incontrollable: time is frittered away that cannot be recalled; and the operation is resorted to when it comes too late, and must, of necessity, prove a failure. Again, the necessary consequences of the operation, and the dangers attendant on it, are not truly estimated: many considering it almost as easy in performance and as free from peril as a common bleeding; whilst others attach to it a degree of importance and of hazard to which it is as little entitled. Amongst the public there is a prevailing notion, that wounds of the windpipe must necessarily prove fatal. This idea may possibly be traced to the older writers on surgery, where such a doctrine is almost universally inculcated; and, perhaps, is partially derived from observing the deaths of slaughtered animals, where this tube is wounded, and what is manifestly the effect of loss of blood is erroneously attributed to another cause. This view of the case renders a patient unwilling to submit to the operation as long as the disease is tolerable—that is, as long as success is possible. He then calls for it—it is performed—and he dies: an event which is, usually, by his friends attributed to the operation. Under such circumstances the surgeon will hesitate to propose or to press a similar mode of proceeding in similar cases; and thus has one of the simplest and safest operations come to be regarded as desperate and uncertain, dreaded by the public, and not sufficiently supported by the profession. Within my own experience, I have seen many cases, that might have been saved by operation, suffered to perish through the influences of these causes—causes that can only be removed by the establishment of correct ideas as to the pathology of the organ.

“During the last ten years I have had very considerable experience in affections of the larynx and trachea, and have, in some instances, been enabled to extend the pathological views I had previously entertained; in others, I have been induced to modify or even to change them. About the period alluded to, the stethoscope was but coming into use, and its application to the discovery of certain conditions of the aerial apparatus, if not unknown, at least had not been demonstrated in this country: its utility, however, has been since completely shewn; and it will be seen in the following pages, and more particularly in that section which treats of foreign bodies in the Larynx and Trachea, that it is

capable of affording certain evidence of the existence of a condition of parts that before could only have been conjectured by rational, and therefore fallible signs. Under these circumstances, I have not only introduced some subjects that were not discussed in the former edition of this work, but have been obliged to extend and to modify the descriptions of symptoms, so as to make them accord with the present state of our knowledge. In some instances, I have written entire sections anew. In the pathological observations, and in the practical deductions drawn from them, I have seen but little occasion to make alterations; at the same time it must be confessed, that one or two important points were overlooked, or not dwelt on with sufficient force: in particular, the co-existence of disease of the lung with that of the trachea, a complication that often renders the best-conceived and best-executed operations abortive.

“With respect to the operation of Bronchotomy, as applicable to the treatment of laryngeal disease, the opinions I formerly ventured to publish have now become authority, since they were adopted by the late Dr. Cheyne, and quoted by that talented writer and accomplished physician, in the articles “Croup” and “Laryngitis,” in the *Cyclopædia of Practical Medicine*. The approbation of such a man is the surest criterion of successful authorship, and the most gratifying reward that could attend a writer’s labours; I have, therefore, not attempted any alteration in that part of the present work. On the whole, I have endeavoured to render this Treatise on Bronchotomy as extensively and as practically useful as my experience would permit; and I offer it to the profession with the more confidence, that my former humble contribution to pathological science was so kindly and so favourably received.”

A careful comparison of the second edition of Professor Porter’s Treatise with the first, has convinced us that the author has rather underrated the additions and improvements he has made; and which, we find, are much more numerous and important than the reader of this Introduction might be led to expect. Thus, in the chapters on Croup, Foreign Bodies in the Larynx, and Chronic Cynanche Laryngea, the added almost equals the original matter; as the work itself is written in a clear but very condensed style, it is quite impossible to present an useful, and at the same time, an abridged account of its contents. In order, however, that our readers may be able to form some idea of its nature and value, we subjoin the headings of the different chapters, and have taken the liberty of extracting the entire chapter on Bronchotomy, as applicable to the treatment of asphyxia.

“Introduction. Diseases of the Larynx obscure. Pathology of mucous membranes. Inflammation. Inflammation of submucous

Tissue. Œdema. Effusion of Lymph. Hæmorrhage. Altered Secretion; altered Sensibility. Function of the Membrane impaired. Ulceration. Spasm.

"**CYNANCHE TRACHEALIS, OR CROUP.**—Definition. Varieties. Pathology. Inflammatory Croup; exciting Causes. Symptoms. Treatment. Question of Bronchotomy considered. Chronic Croup. Symptoms. Treatment. Bronchotomy. Spasm of the glottis. Symptoms; supposed exciting Causes. Treatment. Bronchotomy, as a means of Resuscitation. Diphtheritis. Symptoms. Treatment. Cases of Croup.

"**LARYNGITIS ŒDEMATOSA.**—History. Pathology. Exciting causes. Symptoms. Treatment. Question of Bronchotomy discussed. Cases.

"**CHRONIC CYNANCHE LARYNGEA.**—Mild forms of disease. Symptoms. Treatment. Ulcerations of the Larynx. Treatment. Bronchotomy. End to be obtained by the Operation. Observations.

"**PHTHISIS LARYNGEA.**—Diseases resembling this. Abscess in the neighbourhood of the Larynx. Treatment. Abscess complicated with disorganization of the cartilages. Treatment. Bronchotomy. Patients have survived for years, breathing through a tube. Complication of Pthisis Laryngea with Affections of the Lung. Cases of chronic Cynanche Laryngea; of Phthisis Laryngea; of Mortification of the laryngeal Cartilages.

"**LARYNGITIS FROM SWALLOWING BOILING WATER, THE STRONG ACIDS, &c.**—Effects of swallowing Caustic Poisons; of Boiling Water. Variety of Symptoms. Pathology. Symptoms when Recovery takes place after Caustic Poisons. Pathology and Symptoms from swallowing Boiling Water. Treatment. Bronchotomy. Causes of its frequent failure. Case.

"**FOREIGN BODIES IN THE LARYNX AND TRACHEA.**—Difficulties of the subject. Value of Auscultation. Case. How the Accident happens. Sensibility of the Larynx and Trachea. Conditions in which a foreign Body may be placed. 1. Impacted in the Larynx. Consequences. Case. 2. Loose and moveable within the Trachea. Symptoms. Pathological Results. Cases. 3. Fixed in the right Bronchus. Results. 4. Introduced from without, and remaining fixed in the spot. Case. Treatment of this Accident. Observations on Bronchotomy as applicable to its Relief. Case.

"**BRONCHOTOMY AS APPLICABLE TO THE TREATMENT OF ASPHYXIA.**—Importance of the Subject. Division into three Classes. Asphyxia from a Morsel resting on the Epiglottis. Cases. Pathology. Treatment. Asphyxia from Spasm of the Glottis. Case. Experiment. Treatment. Asphyxia by Drowning. From breathing an Impure Air. Pathology. Treatment. Asphyxia from Hanging. Cases. Experiment. Remarks on the Operation of Bronchotomy.

"If there is an accident which, in a peculiar degree, more than others requires prompt attention, it is that of suspended animation; and therefore it is one which should be thoroughly understood in

all its branches and varieties, and on which every practitioner should have settled and determined principles to govern his conduct. When a man falls down apparently dead, deprived of motion and no longer breathing, or when he is drawn from the water in a state of insensibility, there is no time for deliberation, for consulting authorities, or seeking farther professional assistance: one single minute may decide the sufferer's fate for ever; and on the manner in which it is employed, the happiness or misery of families may depend. I will not dwell on the professional reputation that may be lost or won on such an occasion, although this is a consideration which should have due weight with every practitioner; but if there is a case in which success more than repays exertion, by the inward gratification it imparts, it is the restoration of a fellow-creature to life and its enjoyments. For a contingency of this description, a man must be always prepared; he must have his resources ready to be brought into operation on the most sudden emergency; for these accidents are almost constantly attended with hurry and confusion, in which, if the surgeon participates in the smallest degree, his patient will probably be lost. Calmness and self-possession are absolutely requisite; and the only means by which they can be acquired, is by studying and becoming familiar with the different forms of asphyxia, the causes that produce them, and the possible complications, both favourable and otherwise, that may be present in each: thence may the proper line of treatment be deduced, and principles established that can be applied without hesitation or delay.

"The physiology of asphyxia has of late years been so amply discussed, particularly in Dr. Kay's admirable work, that it may, on the present occasion, be passed over without observation: with the treatment, however, I am not so entirely satisfied, and especially with respect to the operation of bronchotomy. I fear this part of the subject has not been considered practically; and hence the opinions hitherto delivered on it are (to say the least) too sweeping, and too universally applied. In looking at the few authorities I have been enabled to consult, I find the operation condemned in no qualified or measured terms—declared to be barbarous, unprofessional, and unworthy of the surgical practitioner. It is stated by some, that the inflation of the lungs may be as easily effected by the introduction of the nozzle of a bellows into one nostril while the other is closed, and the larynx pressed back against the spine; and, by others, by the passage of an elastic tube through the glottis, an operation which is spoken of as being of great facility. At the present day, perhaps, it may be hazardous even to appear to advocate a mode of treatment thus decried: but having seen a good number of cases of suspended animation, and observed that the efforts to resuscitate were generally unsuccessful, I have given my best attention to the subject, and the result has been the adoption of an opinion not exactly coinciding with that detailed above.

"Independently of the asphyxia of new-born infants, which it is not my intention to allude to here, I think the cases of suspended animation most commonly met with may, with a view to their treatment, be advantageously divided into three classes: 1. Where the patient suffers from a deprivation of air, in consequence of the glottis being closed, the lungs remaining perfectly healthy, and capable of performing their functions if air was admitted: as, for example, in cases where sudden death occurs whilst the patient is eating, and in all cases of spasm of the glottis, whether idiopathic or induced by perfect submersion in carbonic acid gas. These are examples of the most rapidly-formed asphyxia, death being produced quite suddenly, or within the space of a minute. 2. Where the glottis remains open, but the lungs, nevertheless, are either deprived of air, or offered that which is unsuited to the maintenance of life: drowning presents an example of the one, and persons sleeping by a lime-kiln, or in a chamber with a chafing-dish of charcoal, offer familiar and frequent illustrations of the other. In some few of these cases the lungs may possibly be healthy; but, in general, they and the vessels at the right side of the heart are gorged and loaded with dark-coloured blood; the pathological condition being very much influenced by the length of time that elapses before the asphyxia becomes complete. 3. Where, besides the exclusion of the air, there is an abnormal condition of some other part or viscus produced, as of the brain, in cases of death by hanging: these are not cases of pure asphyxia, for the complication is usually the most serious and irremediable part of the accident.

"1. When death occurs during the process of deglutition, it is from hastily attempting to swallow morsels either of too large dimensions or imperfectly masticated, which, in the effort, happen to become so placed as to lie exactly on the epiglottis, shut it down completely, and, of course, destroy the patient almost instantaneously.

"A ravenous servant,* in removing a dish of which he is particularly fond, attempts to devour a part of it before he reaches the kitchen: he makes two or three convulsive efforts to swallow, and perhaps the first notice the people in the house receive of the accident is by the man tumbling down stairs, apparently dead. When taken up, his eyes appear fixed and protruded, his lips swollen, and his countenance purple and livid: there is no pulse to be felt at the wrist, and all the circumstances would lead an inexperienced practitioner to believe that the man had fallen down in a fit of apoplexy, and died. If the mouth and fauces be examined, they

* "Mr. Crampton (the present Surgeon General) used in his lectures to relate a case in which he performed bronchotomy with the most complete success, the circumstances of which very nearly resembled this. Indeed, as well as I can recollect after an interval of several years, the above is an exact outline of the case, and exhibits a specimen of the decision that may be necessary in the treatment of symptoms so exceedingly obscure.

will produce no discovery, for the morsel lies below the base of the tongue, and cannot be seen. If a probang be passed into the œsophagus, it will meet with no impediment, for it will pass backwards towards the spine, and glide over the morsel. Here, then, the epiglottis is firmly and suddenly compressed, the air is entirely excluded, and if the case be mistaken, or if, from any other cause, the patient be not very speedily relieved, he must inevitably perish. If, however, bronchotomy be performed with a view to inflate the lungs, the first breath of air will force up the epiglottis, and throw the morsel which caused all this mischief into the mouth, from which it may be easily removed by the fingers.

“A woman passing along the street, and eating a piece of cake, suddenly fell, gave two or three convulsive struggles, and to all appearance died. She was taken up, and surgical aid almost instantly obtained; the fauces were examined without any appearance of an extraneous body; an elastic switch was passed down into the œsophagus, and as far the stomach, without meeting with any impediment. Bronchotomy was proposed, but, in consequence of some objection being raised, it was not performed, and the patient was lost. On dissection it was found that this woman had a deficiency in the palate, which was stuffed with rags of lint: these had gotten loose, and became entangled in the morsel she was about to swallow, which was stopped immediately over the epiglottis, and thus kept it closely shut down.

“I had, not long since, an opportunity of satisfactorily ascertaining by dissection the exact position of the morsel in these cases of sudden death, which I most gladly availed myself of, as the opinions I entertained on this subject were derived rather from the symptoms produced than from actual observation.

“In the month of February, 1834, I was requested by the proper authority to examine the body of a sailor, who, it was stated, had come by his death under circumstances of suspected violence. He had been eating in company with another man in an upper room in a public-house: both stood up and walked to the stairs, down which one of them fell or was thrown, and was taken up at the bottom of the flight quite dead. The body was that of a low-sized, stout man, with a remarkably short neck; the face was swollen and very red; the eye-balls staring; and every external appearance denoted that he had died by apoplexy, particularly as no mark of injury could be detected. On examining the mouth, I observed a remnant of some potatoes and meat still lying on the tongue and adhering to the teeth: the idea then immediately occurred to me that this was an instance of death by imperfect deglutition. I therefore dissected the parts with great care, and found a large piece of half-chewed boiled mutton lying exactly on the epiglottis, and effectually shutting it down.

“This view of the pathology of the accident suggests at once the mode of practice that will be successful. If the patient is yet struggling with the morsel, all that can be necessary will be to free the epiglottis from the unnatural pressure, and this will be easily

effected if its situation be borne in mind. If the patient is apparently dead, the case is still more urgent, and bronchotomy must be performed, the lungs inflated, the requisite treatment for suspended animation adopted; and unless time, which is here most valuable, be unaccountably trifled away, the surgeon, in all probability, will be rewarded by the most gratifying result.

"But, if it be ascertained that the morsel always rests upon the epiglottis, it may be asked why it should not be removed by the finger or the forceps, and the common means of restoring suspended animation subsequently resorted to without having recourse to the knife at all? The answer must depend on the manual dexterity of the practitioner, and on his acquaintance with the nature of the accident. If he can remove the morsel from its situation, and introduce a tube through the natural passage in less time than he could accomplish the introduction of air into the lungs through an artificial opening, of course he should prefer that mode of proceeding by which least time was lost.* But the question is, will the young practitioner, called, perhaps, for the first time to such an accident, in the hurry of the moment, and surrounded by a crowd of anxious and agitated spectators, be equally competent to the completion of these tedious and difficult manœuvres as to the performance of a safe and easy operation? Let any man make a section of the fauces, and examine the situation which such an extraneous body would occupy placed behind the root of the tongue, and he will see that its removal may prove both difficult and tedious. And supposing the obstruction removed, the lungs must be inflated, and artificial respiration maintained, which never can be accomplished with so much ease as by creating a direct passage by means of bronchotomy†.

* "A very dangerous opinion exists, even amongst medical men, that persons in a state of suspended animation may be restored after a very considerable lapse of time; and this mistake is kept alive and fostered by reports from Humane Societies, &c., in which wonderful stories are related of resuscitation after a most incredible space of time. So far as these stories may induce practitioners to undertake cases apparently desperate, and to labour patiently and diligently for their recovery, they can do no harm; but the moment they are adduced as reasons why the least possible delay can be admitted, they are most injurious, and may prove the occasion of loss of life. It is impossible to say at what precise time after apparent death the action of the heart ceases, or, at least, that it is no longer capable of being re-excited: perhaps much may depend on individual idiosyncrasy, and that differences may exist in different persons; but certainly that practitioner will act most securely, and have most success, who allows the least time to elapse between apparent death and the commencement of his attempts at resuscitation."

† "Desault would, in such a case, recommend an elastic tube to be passed into the trachea, and instances a case in which it might have been successfully used: *"une femme avala un os avec tant de voracité qu'il resta dans le milieu du pharynx. A l'instant même tous les signes de la suffocation survinrent, et au bout de trois minutes la malade n'existoit plus."* Does not the place where this bone was found, *"le milieu du pharynx,"* and the circumstance of its so immediately causing death, shew that it was pressing down the epiglottis?—and if it was so, how could a tube be introduced into the larynx?

“There is another circumstance connected with this subject which should decide the surgeon in favour of bronchotomy. It is well known that the powers of life in any patient that has been apparently suffocated are extremely reduced, and that after his restoration it frequently requires the utmost care to prevent his relapsing into his former state again. Thus, it may happen that the process of inflation of the lungs shall have to be resumed five or six times, or even oftener, and this during a very short space of time. If such necessity should be found to exist, there are, probably, few practitioners who would prefer the introduction of a tube through the nostril every time respiration became imperfect; and as for leaving the tube, once introduced, within the trachea, producing irritation and exciting cough, it would scarcely be feasible, and certainly injudicious. On the other hand, the operation of bronchotomy presents the easiest means of inflating the lungs at any moment, and although the necessity of resorting to this procedure may possibly not arise, yet the operator should always bear in mind that in all probability it will, and prepare in the commencement for those contingencies which may subsequently create no inconsiderable embarrassment, or perhaps render all his exertions unavailing.

“It has been supposed that the stoppage of a foreign body lower down in the œsophagus, might, either by direct pressure on the trachea or by inducing spasm of the glottis, create such a difficulty of respiration as to render an operation necessary. Certainly this accident does occasion severe distress, and gives rise to alarming symptoms; but they are not of a character that indicates immediate danger of suffocation, and can never require bronchotomy. A man suffering from such an accident, will have a forced and almost an incessant cough: there will be straining to vomit; a copious flow of saliva from the mouth; his face will appear red and swollen from the constant exertions he makes to free himself from his uneasy situation: his eyes will be protruded, and there will be considerable anxiety depicted on his countenance; but there will be no difficulty of breathing beyond what must be occasioned by the absolute pressure on the posterior membranous part of the trachea.

“There is scarcely any substance sufficiently small to pass into the œsophagus below the situation of the epiglottis, that will not be capable of being forced into the stomach, unless it be sharp or pointed, or accompanied by some other untoward circumstance which will cause it to wound the œsophagus and stick firmly in it; and in such a case I would prefer cutting into this latter part, and extracting the offending substance, to any other operation whatever. If bronchotomy was performed for the relief of such an accident, it must be below that part of the œsophagus in which the foreign body is situated: and if we take into consideration the size of any substance sufficient to press severely on the membranous part of the trachea, and the situation such substance must occupy, it is

evident that any operation to remove the inconvenience must be performed at the very root of the neck, where the trachea lies deep, and where very important parts may be endangered. And next, after relieving the urgent symptoms, the difficulty of getting rid of the original cause of the mischief remains as great as ever; so that, under any view of the case, the operation will probably not be advisable for the relief of this particular species of accident.

"At the same time, I am aware that there are high authorities amongst the records of surgery to warrant a very different opinion. One of the first of these, and probably that one to which the greatest importance has been attached, is that detailed by Habicot;* but this is, probably, not a fair specimen of the accident immediately under consideration; for it appears the foreign body stopped somewhere very high up in the throat, probably so high as in some measure to press upon the epiglottis; and at all events, as it was subsequently forced into the stomach, there seems to be no sufficient reason why this was not done first, and the pain and inconvenience of the operation spared altogether.

"I believe an examination of most of the other cases in which mention is made of the necessity of this operation will be found to exhibit nearly similar circumstances.

"Spasm of the glottis may be produced by a variety of causes: it is, as has been stated, idiopathic in the child; it occurs very frequently to the hysteric female, though not to the extent of inducing suffocation; it is liable to happen in all forms of laryngeal disease, and very often proves fatal; it may arise from the accidental admission of a foreign body, such as a particle of salt, into the larynx; and it is the manner in which a perfect submersion in carbonic acid gas destroys life. The cases of suspended animation from this cause ought to be in general favourable for attempting resuscitation, because the lungs are not necessarily engaged, that is, a diseased or congested condition of the lung forms no part of the cause of the asphyxia; yet, are they not the cases in which the effort is most frequently crowned with success? Even in experi-

* "Un garçon de la campagne, âgé de quatorze ans ou environ, avoit oui dire que l'or avalé ne faisoit aucun mal. Ayant vendu quelque marchandise à Paris, dont il avoit reçu quelques neuf pistoles; de peur de voleurs les empaqueta dedans une linge qu'il avala. Mais ne pouvant passer le detroit du pharynx, ou gosier, la face lui devint si epouvantable et difformé, poue l'enflure et noirceur d'icelle, que ceux qui l'accompagnoient le mécoignoisoient: de sorte que l'apportant chez moi, ne pouvant lui faire devaller, ni attirer un tel obstacle dedans l'estomac, tant il étoit serré par l'enflure de la gorge; considerant qu'il etouffoit, apres un bon prognostic, je lui fis la broncotomie; laquelle etant faite, il ralliot si impetueusement de la violence de l'air, que cela épouvantoit ceux qui etoient autour de lui: mais la tumeur et mauvaise couleur de la face s'étant evanouies, les assura de la vie et nommément apres que j'eus derechef introduit la sonde de plomb (dans l'esophage) pour achever de devaller dans le dit estomac ce tampon, lequel huit ou dix jours apres le rendit par le siege, a diverses fois et son or ne fut perdu, ne si avanturé de sa vie, qui lui restituée par la plaie de la trachée artere de laquelle il reçut prompt guérison.

menting on animals, I have never seen an instance of recovery after perfect immersion in pure carbonic acid gas.

It is assumed, then, that the lungs are healthy, and that the species of asphyxia under consideration has been occasioned by the exclusion of the air, in consequence of the spasmodic closure of the glottis. The next point to be ascertained is the duration of that spasm after life appears to be extinct. This is a question of some importance, with respect to the facility of performing insufflation; and I believe the opinion generally entertained, that the spasm ceases with life, is not borne out by facts; indeed, it might be inferred that this does not speedily become relaxed, from the circumstance of the bodies of persons that die of laryngeal disease becoming extremely rigid, and remaining so for an unusual length of time. The following observations may throw some little light on the subject.

"A patient in one of the medical wards of the Meath hospital, suffering from laryngeal disease, dropped suddenly dead whilst drinking a little milk about nine o'clock on the morning of the 10th February, 1836. The body was examined after an interval of two hours and a half, and the upper part of the larynx found to be the seat of extensive ulceration; the rima glottidis was completely and rather firmly closed. On the next morning, or about twenty-four hours after death, it had become nearly as large as it ought naturally to be.

"In prosecuting some experiments on this subject, a stout middle-sized dog was let down into a brewing vat, that had been emptied of the fermenting liquor about ten minutes previously; he was, to all appearance, perfectly dead in two minutes. After allowing the body to remain thus for twenty minutes, it was examined; the glottis was found to be of a very pale colour, and the rima completely shut up by the close approximation of the arytenoid cartilages. The epiglottis was shut down like a lid upon a box, so as perfectly to close the superior aperture of the larynx: this latter was a curious appearance, and I know not what muscles could produce the effect; but the fact was witnessed by Dr. Hart, Dr. Young, and others.

"Under circumstances of this description, it is evident that any attempt to inflate the lungs by the introduction of the nozzle of a bellows into the patient's nostril would be unavailing, for, whilst the spasm of the glottis continued, not a particle of air could pass. Thus have I seen, in more than one instance of suspended animation from carbonic acid, an operator inflate the stomach and the whole intestinal canal to an enormous size, whilst he thought the air was passing into the lungs, never once considering or being aware that it was perfectly excluded by the condition of the glottis. In such a case, it certainly is possible to pass a tube through the rima, by seizing the tongue and drawing it forward whilst the larynx is pushed back against the spine; but unless to a person who had acquired dexterity by practice, even this will be attended with difficulty and delay, and, besides, will require more force than an inex-

perienced practitioner will be willing to exert. Under all circumstances, the surgeon who would, in these cases, resort to bronchotomy at once, would probably prove most successful.

"2. The bodies of persons that have suffered death by drowning always exhibit a congested state of the lungs and of the vessels at the right side of the heart; but in these respects there is some variety according to the length of time the patient had struggled in the water, before he had become asphyxiated, those who appear to perish quickly exhibiting the least pulmonary derangement. Sometimes the lungs contain a small quantity of water, and in other cases there is only a frothy mucous fluid. The vessels of the brain are not more gorged than usual, and the irritability of the heart remains for some time.

"When persons die from respiring an atmosphere strongly tainted with carbonic acid gas, the appearances are somewhat similar, except that the lungs are even more loaded, and exhibit large spots or patches of a deep purple or black colour; the right side of the heart is full of blood, and the irritability of the organ is more impaired, and sooner altogether lost than in the former case. In one instance of death, from sleeping in a room with burning charcoal, I found the vessels of the head and face loaded, and the veins of the neck turgid and prominent under the finger. In both these accidents, which are unfortunately but too frequent, the rima remains open.

"In discussing the mode of inflating the lungs in these cases, it would be absurd to mention bronchotomy, if the practitioner who happens to be present or first sees the patient is provided with the proper instruments for the treatment of suspended animation. But if he is not, the question to be decided is, how are the lungs to be inflated with the least possible delay? In the great majority of instances wherein respiration has been completely suspended, actual death ensues in from three to five minutes; at least in our experiments we seldom see the animal recover after that period, and thence the importance of even a few seconds may be easily inferred. Now, if a surgeon happens to see a body drawn from a canal, in which it had been some minutes submerged, is he to order that body to be carried to the nearest institution at which an apparatus for the recovery of the drowned is kept, or is he to open the windpipe on the spot, and commence insufflation with his own breath at once? The adoption of other useful or necessary measures, such as the application of warmth to the surface, &c., for want of attention, to which a patient is very often lost, may not be easily provided for in a boat, or on the bank of a river; but with reference to the inflation of the lungs alone, there ought to be little hesitation as to the means to be adopted. With some caution, an opening into the trachea of an asphyxiated person may be made safely and rapidly; the air blown from the lung of the operator himself will, as I have frequently proved, be sufficiently pure, and perhaps the warmth with which it is impregnated may, in some respects, prove beneficial.

"On this subject, it is essential to establish some fixed rule and principle of action. If a person is drowned in the immediate neighbourhood of an institution where a suitable apparatus is kept, or if he can be conveyed to it without a perilous loss of time, bronchotomy would be totally uncalled for; or if the practitioner who first sees the case happens to have about his person any tubes, or other instruments that can facilitate the inflation of the lung without making a direct opening into the trachea, most assuredly no one ought to object to their employment. But such fortunate coincidents do not occur in practice. The accident under consideration allows no selection of attendants, it must be treated by the practitioner who chances to be nearest to the spot, or not at all; nay, it is a happy occurrence if any can be had within the required time. If the patient is to be preserved, it must be by quickness and decision; and I think it would be a matter of reproach to a surgeon to delay the inflation of the lungs by means of bronchotomy, in order to wait for more perfect instruments, and perform a bloodless operation.

"The person who has fallen asleep by a lime-kiln, and thus breathed an atmosphere impregnated with carbonic acid gas, is somewhat differently circumstanced, although the appearances on dissection may, to a certain extent, agree. In this case, a perfect state of asphyxia is produced more slowly, and the lung is not only congested with dark blood, but its cells filled with an impure and poisonous air. Thus it becomes more than questionable, whether air that had been respired would be sufficiently pure for insufflation; an argument which, if true, is decisive against bronchotomy, the chief value of which is, that it allows the operator himself to inflate the lung without a moment's delay. Whether from either of these causes, or from some poisonous quality in the gas itself (for there is reason to believe its application even to the external surface of the body, is deleterious), or from the combined operation of all three, certain it is, that when the asphyxia is complete, and no sign of animation remains, recovery is extremely improbable. In the earlier stages, and while yet there is respiration, however laboured and imperfect, a good deal may be effected by a full abstraction of blood, the removal of the patient into a pure atmosphere, the application of cold water to the surface, and the use of stimulants; by these or similar measures I have seen many recovered from a most perilous condition, but never from the more advanced stage, when animation was completely suspended. I do not, however, by any means intend to advance, that recovery is impossible, or that the utmost diligence and perseverance ought not to be employed in this as in every other form of asphyxia; but writing from experience, I merely state the result of my own observation, without adverting to opinions that have been entertained by others. I would, myself, lend my best exertions to the relief of such a case, but without encouraging very sanguine expectations of success.

"3. In cases of asphyxia, caused by suspension, the question

of bronchotomy may be still more easily disposed of. These cases are divisible into two classes, essentially different in all their circumstances; those which suffer in this way as a mode of punishment; and those who inflict it on themselves with a view to suicide, or are strangled accidentally. Medical jurists have entered largely into the discussion of this subject, principally with a view to determine the means of recognizing the different cases; but that is foreign to our inquiry, for the "supplicès" are (at least in this country) placed far beyond the possibility of recovery, even if such an improper and unwarrantable attempt should be undertaken. We have, therefore, only to deal with the suicide, or the person accidentally hanged; and I imagine so far as the mere suspension of animation is concerned, these cases must resemble those produced by drowning, and the observations made on that subject ought to be applicable here; but it has been already stated, that these are not cases of pure asphyxia; they are complicated; and the complication is too often the most irremediable part of the accident.

"I can well recollect the instance of a young man, a friend of my own, who hung himself in a fit of despondency from some disappointment in a love affair. He was discovered in a few minutes, and cut down while still breathing; but it was of little avail, for he never spoke afterwards, and died on the ensuing day. The body was examined after death, and no satisfactory explanation given of its cause, except that the vessels of the brain were congested. There was only a trifling ecchymosis of the neck, marking the situation where the cord had been applied.

"A boy, in the service of a brewer, thought to vex his master, by whom he imagined he had been treated with severity, by hanging himself, and accordingly put his plan into execution. He was discovered, cut down, and brought to the Meath hospital, where he was placed under my care. He was at first quite stupid, with stertorous breathing, and incessant jactitation; he answered no question, and seemed impatient and angry at being disturbed; in short, he resembled a patient with the incipient symptoms of compression on the brain. He was bled largely from the jugular vein, and seemed, in some respects, to be relieved. Leeches were applied to the temples, he was cupped on the back of the neck, and the whole head shaved and covered with a blister: every thing that could be devised was done for him during the six days he lived, but in vain: he never recovered consciousness, or spoke a word afterwards. Dissection shewed no more than a vascular and congested condition of the brain.

"It is quite unnecessary to dwell longer on this subject, when it is recollected that an opening made in the windpipe, previous to suspension, will not preserve life. Encouraged by the experiment of Hunter, I bronchotomized a dog, and hanged him afterwards for two hours: the poor animal struggled, and was taken down alive; and never did I more regret the barbarity of an experiment, which, after all, turned out to be valueless, as he died in

two days afterwards. The case of the butcher Gordon, which is quoted in the *Memoires de l'Academie Royale*, and all the works on juridical medicine, is still more apt: he was bronchotomized previous to execution, and though taken down alive, he derived no benefit from the operation. After having been removed to bed, and while his attendant was making efforts to restore him, he had two or three convulsions, and died in a few minutes afterwards. All these cases prove that there is something more than asphyxia caused by hanging, and that the remedies which may be useful in the simple case of suspended animation cannot, unless under singularly fortunate and fortuitous circumstances, be expected to prove as salutary in this.

“In the preceding observations I have only noticed the forms of asphyxia that most commonly occur, and with which the surgeon will be most frequently called to deal; and it may be seen that I have merely directed my attention to the subject of bronchotomy as an auxiliary measure in such cases. Thus, I have considered asphyxia as a kind of intermediate state between life and death, which without active measures will certainly terminate in the latter, but from which restoration is possible; and the circumstances that interfere to prevent such restoration are, the length of time that has elapsed since animation became suspended, and the organic changes produced by the causes that led to the suspension. The time that a body may remain asphyxiated is not known, but is probably very short; and hence I have only advocated the operation in cases where it appears to offer the sole or the speediest means of inflating the lungs. I may now shortly advert to the chief practical objection that has been advanced against it; namely, the danger of hæmorrhage into the trachea, and the consequent suffocation of the patient.

“In the living subject, although hæmorrhage of this kind is by no means an infrequent occurrence, and from the struggles it occasions has rather an alarming appearance, yet, I have never known it to produce really dangerous results, the blood being coughed up and expelled by the efforts of the patient alone. But while the subject is not breathing, any blood that flows into the windpipe will remain there, and if in quantity must occasion serious consequences. With respect to this observation it may be answered, that the awkward performance of an operation, or the selection of an improper locality, cannot fairly be adduced as an argument against it; and this, if properly and judiciously performed, ought not to cause the loss of a teaspoonful of blood. All that is required is an opening into the trachea in any part below the rima, and the crico-thyroidean space is obviously the situation to select, for there the tube is superficial, most easily reached, and there is no important bloodvessel in the way. I cannot imagine the smallest difficulty or danger in the performance of this operation. On the other hand, I have seen the windpipe opened lower down in the neck: the first incision caused a great flow of blood; but it ceased almost immediately, and the operation

was finished without any delay worth noticing. The case was unsuccessful, and the breathing never renewed; but had it been otherwise, I know not what might have been the result after respiration had been re-established, probably the hæmorrhage might have recurred, and occasioned a vast deal of present inconvenience and ultimate danger.

"It is scarcely necessary to observe, that with a bronchotomy trochar the windpipe may be pierced in any situation without the possibility of a drop of blood gaining admission; but the remark is of little value here, for these instruments are seldom carried about a surgeon's person; and I will again repeat, that in cases of asphyxia assistance must be rendered by such means as can be made available on the spot, or need scarcely be attempted at all."

"WOUNDS OF THE LARYNX AND TRACHEA.—*The Operation of Bronchotomy.*—General Remarks on Wounds of the Trachea. Comparison between the Wound inflicted by the Suicide and Bronchotomy. Cases. Bronchotomy suggested at an early period. Symptoms and Pathology of Wounds of the Trachea. Complications. Foreign Bodies. Hæmorrhage. Escape of the Food through the Wound. Second Period of Danger. Inflammation. Question of Bronchotomy discussed.

"THE OPERATION OF BRONCHOTOMY.—Bronchotomy a generic Term. Laryngotomy—how performed. Tracheotomy—how performed. Danger of Hæmorrhage. After-symptoms and Progress of the Case. Conclusion."

Practical Observations on the Venereal Disease, and on the Use of Mercury. By ABRAHAM COLLES, M. D., one of the Surgeons of Doctor Stevens's Hospital, and lately Professor of Surgery in the Royal College of Surgeons in Ireland. pp. 351.

It is not easy to declare in its full extent the degree of real satisfaction, with which we learned the announcement of the publication before us, having long experienced the humiliating conviction, "that in the whole range of surgical diseases, there is not one which may with more justness be styled the opprobrium of surgery than the venereal disease," and at the same time felt convinced that few men could be found more competent to grapple with the difficulties that surround the subject on all sides, than he who was during so many years the ornament of the first surgical chair in Dublin. Syphilis seems to be a fated disease that no one can understand; at least, that no one can so far simplify and arrange, as to bring it within the compass of those general principles that govern our conduct in the management of other maladies. That this arises from the

Protean character of the disease itself, must be in a great measure conceded, for we believe it exhibits varieties, according to country and to climate, nay, that there are some localities in which it is not known, and perhaps cannot exist; and moreover, that amongst ourselves it occasionally appears to be subject to influences that we can neither comprehend nor explain. From these and a number of similar circumstances it cannot be a matter of surprise, if the opinions of practitioners came to be "divided and unsettled, and their treatment wavering and uncertain." We have had a French surgeon to publish to the world,* that there was no such disease as venereal at all, and have seen many practitioners who treated their patients as if they entertained the same idea. We know many intelligent surgeons who consider "syphilis" as a generic term, under which may be classed a number of species, each in itself distinct and separate; each primary sore followed by its own proper and peculiar train of secondary affections, from which there neither is, nor can be any deviation. And again, we have a class of practitioners, who may be termed decided syphilists, who think not only that every sore on the genitals of a particular appearance is venereal, but even hold that if a man constitutionally tainted should happen to receive a cut on the finger, or a wound on the head, the consequent sore would assume the character of the disease, and the matter secreted by it become capable of being the medium of contamination. We offer no opinion as to the correctness of any of these particular doctrines, but speaking of the disease generally, and with such facts before his eyes, well might Mr. Colles exclaim, that the knowledge we possess of its natural course, or natural history, is indeed imperfect.

* 1. Le virus venerien n'existe pas.

2. Les maladies dites veneriennes lorsqu'elles sont primitives sont le produit de l'irritation causée immédiatement sur les surfaces vivantes, soit par le pus qui secretent les membranes muqueuses genitales inflammées ou ulcérées, soit par quelques violences extérieures.

3. Les maladies veneriennes secondaires ou consequetives ne dependent que de la sympathie qui n'est que la consequence d'une loi generale en vertue de laquelle les tissus analogues de l'economie tendent toujours quoiqu'avec plus ou moins d'energie suivant les circonstances a reproduire les memes actes, quand ils ont été premiere affectés.

4. Aucune maladie venerienne n'est hereditaire.

5. Le mercure loin d'être un remede specifique contre les accidens de la syphilis comme on l'a cru jusqu'a ce jour n'exerce aucune action avantageuse sur eux et produit au contraire lui meme dans les plus nombres des cas des desordres qui ont la plus frappante analogie avec les alterations morbides qu'on a prises jusqu'a present pour les seules caracteriques de la verole.—*Dictionnaire de Medecine*, tom. xx. p. 199.

Such a diversity of opinion must, as a necessary consequence, have led to a diversity of practice, in giving or withholding that medicine which has always been regarded as the only specific for the disease, wherever its existence has been admitted; but there seems in all times to have been another powerful motive to influence surgical practice, in the fear lest that from which we expect the greatest benefit should prove injurious, or even destructive. We know that to some constitutions mercury is a poison, and that to all it is dangerous, unless administered with the greatest care, caution, and regularity, and from the first moment that it, and the poison of syphilis, were brought into opposition, or rather collision with each other, it is difficult to say which has been most pernicious to the human race. The early history of the disease is but one picture of wide-spreading desolation, it infected all ranks and conditions of men, princes, and peers, and prelates, many of whom it had carried off long, and very long after mercury had been prescribed for its cure, and the ravages of this latter were so great, and its results so horrible, that "a great many chose rather to die of the disease, than to submit to it."* The satisfaction, with which the discovery of the virtues of guaiacum in 1519,† and of sarsaparilla about 1535, was hailed, may therefore be easily explained, as well as the fact of these medicines having at times totally superseded the use of mercury. And this, with little variation, has been for three centuries pretty nearly the history of syphilis; now treated with mercury to an extent ruinous to the patient, and disgraceful to the practitioner, and again left to run its wild career, unchecked, save by a treatment at best but temporary and palliative. We are old enough to remember when mercury was very generally given without limit or discrimination, and when all symptoms or sores found on the organs of generation were heedlessly submitted to the same remedy: in general the worse the symptom became, the more certainly was it accounted to be venereal, and the more actively was the mercurial treatment pursued. It is needless at this period to say what havoc was thus caused amongst patients in crowded wards, and breathing a mercurial atmosphere, whenever the medicine happened to disagree with them.

About the period alluded to, Mathias's work on Mercurial Diseases appeared, and many practitioners adopted the opposite extreme in attempting the total relinquishment of the medicine. This may be regarded as the commencement of the revolution,

* Astruc. pp. 158, 159.

† Sprengel.

and was followed by some interesting experiments conducted in the army, the best field for such investigations, inasmuch as the subjects remain for years under the observation of the practitioner. The following are nearly the results: 1st. It was found that *all sores* on the genitals might be cured by local applications, or perhaps it would be more correct to say, without the exhibition of mercury; and 2nd. That as the sequelæ of these sores, constitutional symptoms did not always appear, and consequently that they could not be all venereal: at the same time, a marked discrepancy existed in the experience of different observers as to the frequency of constitutional contamination, thus, with some, one case out of every three* was followed by secondary symptoms, with others one out of seven,† and with others still, the proportion was only one out of ten or twelve. At the very moment in which we write, there are many surgeons who scarcely dream of using mercury for any primary sore whatever, others again employ it in small quantities, and alterative doses, whilst there are some who still regard it as the only specific, and repose confidence in it alone for the eradication of the syphilitic virus. We have reason to believe, however, that even the most decided mercurialist shews more caution and judgment in the exhibition of the remedy, and is therefore more successful than heretofore.

We have indulged in the foregoing observations, which may appear somewhat misplaced here, for the purpose of shewing, that the author who might hope to introduce anything of an uniform line of practice, or compose a work on the venereal disease, which should prove pleasant or palatable to all, would have no trifling adventure to achieve: neither do we entertain the most remote expectation, that the work before us will even approach so desirable a consummation. Syphilis has been in all times, and all ages, the parent of theory and speculation, and with these Doctor Colles has nothing in common. His great and peculiar talent has always been a minuteness and accuracy of observation. Nature has been the book in which he has principally studied, and his doctrines and opinions are the records of facts, the rich results of long and practical experience. The descriptive part of this work is that to which we attach the least importance; indeed, considering that more has been written on syphilis, than on half the diseases in the world put together, it would be difficult to discover a new appearance, or an unnoticed symptom, but whatever is described bears the evident impress of truth. In perusing the works of some medi-

* Rose.

† Bacott.

cal writers, (particularly of our continental brethren,) we have often imagined, that disease was occasionally pourtrayed, not as it is, but as they thought it ought to be: the reader will not find such poetic license exercised in the pages before us.

Doctor Colles, evidently a follower of the doctrines of Hunter, is nevertheless what may be termed a cautious and moderate mercurialist, he considers the medicine, when properly administered, to possess a full claim to be regarded as a specific, and it is easy to see, that he reposes no confidence whatever in the non-mercurial plan of treatment. Nor do these opinions seem to have been rashly or hastily formed. When this plan first attracted attention, he in connexion with the other surgeons of Doctor Stevens's Hospital adopted it for some time, they tried it, and persevered in the trial, until they all became convinced of this fact—

“That it was not suited to patients who were obliged to earn their bread by labour; for we saw that after they had left the hospital, and got into employment, they generally found themselves weak and unequal to their usual labour; and often, at the end of two or three months, they returned emaciated, pale, and enfeebled, in consequence of the hectic form of fever, which was about to usher in a new series of venereal symptoms.”—p. 317.

He tried it also for some short time in private practice, but soon saw, or thought he saw, good reasons for relinquishing it, and he gives the following as the results of his observation of some cases that had been thus treated by others.

“No doubt, fewer of the non-mercurial patients complained of affections of the bones, than those who had been ineffectually treated by mercury; but I saw instances of closed pupil and opaque lens, produced by iritis which had been neglected, not having been considered as venereal symptoms. I have seen many cases where the soft parts of the throat had suffered severe mutilations; and above all, I had too many opportunities of watching the very slow and silent, but sure inroads, which the often-repeated attacks of secondary symptoms made on the constitutions of the patients; of witnessing this phenomenon—that the venereal disease, from year to year, shewed itself with less striking characteristics, while other diseases appeared to spring up; so that, for some months before the death of such patients, it would require a close examination to discover the one or two slightly-marked symptoms of syphilis which remained; and also, required close research to trace the symptoms of apparently the last and fatal disease to its true source, the infection of syphilis. But, on tracing the state of health from the primary ulcer, down to the final and fatal disease, I could clearly see, that at no period was the unhappy sufferer altogether free from the venereal disease; so that both the patients and their

friends, in many instances, lost sight of the original syphilitic disease, and referred the death to some other apparent cause, such as ascites, or some disease of the lungs."—pp. 318, 319.

These extracts will sufficiently explain the views of the author on this very important part of the subject.

The work consists of two parts, one of which (the second) refers to the use of mercury in diseases not venereal, and which, however practically valuable, comes not within the scope of our observations here: the other contains fifteen chapters, inclusive of one of immense value on Infantile Syphilis, one on Pseudo-Syphilis, and one, from which we have already quoted, on the Non-mercurial Treatment of Venereal Affections. The first chapter contains some remarks, though neither very full nor very general, on the Natural History of the Disease, which we shall not dwell upon now. Great pains have been taken to prove a fact, on which we scarcely imagined that any surgeon of the present day, of practical experience, could entertain a doubt, namely, that the matter of secondary syphilis is capable of infecting and of communicating the disease.

The second and third chapters, which are perhaps the most valuable of the entire work, (excepting always that on Infantile Syphilis,) treat of "the Administration of Mercury." We do not altogether object to the arrangement that has thus placed them, although perhaps the information they contain might have come with more advantage after the descriptive parts of the work, when the reader would be supposed to have made himself acquainted with the various symptoms that indicated a necessity for the employment of this much dreaded, yet powerful medicine. We shall, then, assume the existence of syphilitic disease in some of "its almost endless varieties:" we shall farther assume, as we think Mr. Colles does throughout the entire tenor of his work, but more particularly in the commencement of his chapter on Chancre, that such disease is curable by mercury alone, and then we come to examine into the most safe and judicious mode of administering it; the symptoms and signs, by which to recognize its tendency to a salutary, or to an unhealthy action; the diseased conditions of the system to which it may give rise, and the means by which its irregularities may be counteracted or avoided.

The first point insisted on is, the necessity of preparing the system by some preliminary attention, either in reducing the full, plethoric, and robust individual, labouring under primary symptoms, or in attempting to remove any morbid condition that may be present in the broken and cachectic patient affected with the secondary forms of the disease, before either or any

shall be subjected to the influence of mercury. To such precautions as those, the attention of the young practitioner should be particularly directed, as otherwise he will be likely to receive some severe and practical hints as to their importance. Nothing is more common than to see a surgeon, the moment he has made up his mind that any given sore is syphilitic, prescribe mercury in some of its forms without farther hesitation, and then to witness his surprise, that notwithstanding the operation of his specific medicine, such sore should assume an unhealthy aspect, become horridly painful, and spread with a fearful and destructive rapidity. In almost every instance such untoward events are mainly to be attributed to a premature and incautious introduction of mercury into a sanguineous and irritable system. Even in cases of secondary symptoms, in enfeebled and reduced habits, the practice is to waive all precautionary measures, and either to place the patient under the influence of the medicine at once, or consign him to the non-mercurial plan of treatment, sarsaparilla, guaiacum, and acids. To the latter, Doctor Colles is seldom found to be favourable.

"In this manner," says he, "I believe a very few may be cured, but many more I know have been allowed to sink into an untimely grave, by the slow and silent, but certain operation of the venereal disease, the symptoms of which have become so changed or masked, that common observers could not recognize the features of the original case."

But with the former he is as little disposed to agree, or to permit the introduction of mercury, without the previous removal of any unhealthy condition that may be present in the system. We shall again transcribe his own words:

"I feel certain also, that surgeons must have often seen, in cases of patients affected with secondary symptoms, who have been worn down and exhausted with an irritable state of the bowels, induced perhaps, in the first instance, either by a highly stimulating diet, adopted with the view of exciting appetite, or, as in the poorer classes of life, by ardent spirits and food of an innutritious nature, that this condition of the intestinal canal has been greatly increased, and even urged on to an uncontrollable diarrhœa, by superadding the irritation of mercury during this state of the system generally, and of the bowels in particular. Many of such cases have, under these circumstances, sunk into a state of the most alarming and even fatal weakness, the moment the mercury has made an impression on their irritable and enfeebled frames."

Need it be added, that we cordially agree in the foregoing observations? There are in reality but few cases in which

risk need be incurred by a too rapid exhibition of mercury, amongst which the deep inflammation of the eye, some forms of laryngeal ulceration, and a threatened destruction of the bones of the nose may be placed, although even this latter case may be somewhat problematic: but in its other forms the disease seldom runs its course so rapidly as to preclude the possibility of previous preparation. With this, and with judicious management afterwards, the influence of the medicine over syphilis is far more extensive and general than is commonly believed in modern times. Doctor Colles administers it successfully in cases complicated with scrofula, some interesting examples of which are related in his eleventh chapter. It should also be stated, that he insists on the observance of a proper regimen and diet throughout the duration of the entire course, as fully as on the necessity of preparation previous to its commencement.

Although not distinctly stated, we believe that our author gives a preference to the introduction of mercury by means of friction, because he observes, that "in this method of administering the medicine, its various effects are more clearly and unequivocally exhibited," and because he gives such full instructions for its employment either by the patient himself, or an attendant. He had previously pointed out the connexion between the occurrence of ptyalism, and the sanatory operation of the medicine, and he now directs attention to the period at which the appearance of salivation ought to be expected, namely, between the fourth and seventh days: deprecating either a premature or a delayed development of this very important symptom, as indicative of an imperfect, or incomplete action of the medicine, and of the probable recurrence of secondary symptoms. The management of the case up to and during this early period is of the utmost consequence, as if matters have progressed favourably so far, there may be every reasonable expectation entertained that they will meet with no interruption afterwards.

"When once the system has been brought under the influence of mercury, there is but little difficulty in the further management of the case; as in my opinion, there is but little to fear even from its protracted use, provided that mere ordinary attention be paid to the general health, and that care be taken not to allow the action of the medicine to pass beyond the line which has been already pointed out."

He next directs the reader's attention to "some of the untoward events that occur during a course of mercury," such as, fever without ptyalism—an obstinate resistance to the effects of

mercury without fever—hyperptyalism, &c. &c. These, however, we shall not dwell upon, in order that we may lay before our readers a few extracts connected with two of the most unpleasant affections that can be produced by the use of the medicine—the erythema mercuriale, and the erethismus.

“The erythema mercuriale was, I believe, first described by Doctors Alley and Moriarty, of this city, and more lately and fully by Mr. John Pearson. Of this affection, I shall in the first place remark, that we may observe some slight indication of an approaching ptyalism at the very time that this rash appears. It is therefore to be looked for in the early periods of the mercurial course. Sometimes it scarcely attracts the attention of the patient for the first two days, and not until the uneasy sense of itching, which it excites, shall have deprived him of a night’s rest, and then, when he complains first of it, it may be found widely spread over the limbs and body.

“The degree and kind of fever which attends this eruption is very various, and seems to be influenced partly by the previous habit and constitution of the patient, but still more by the severity and duration of the eruption. I could not find that any particular type of fever, necessarily, or even generally, accompanied it.

“I may next remark, that an obvious amendment takes place in the symptoms of the venereal disease, on the first appearance of this eruption, and that in a degree more striking than that which attends so slight a degree of ptyalism.

“What is most worthy of remark is this, that we never find this eruption to make its appearance while the system is under the influence of ptyalism. So that after we have ptyalism fully established, we may dismiss all our fears on account of this rash. But let us not be lulled into a false security, merely because this symptom may not appear in the early part of a mercurial course; for in some instances it does not appear until the mercury has been used for a considerable time.

“We may, in fact, declare, that at whatever period of a course of mercury the mercurial fever is *first* suddenly excited, there is danger of the erythema. Hence it should be a rule with those who are conducting a course of mercury, to watch carefully the earliest effects of each increase in the doses of the medicine, and to question the patient minutely, that he may get the earliest notice of the presence of this affection. When once the first burst of mercurial fever is over, and ptyalism has been fairly established, then the surgeon may carry on the mercurial process to any length of time necessary, (provided he does not allow the action of the mercury to subside,) and yet be under no apprehension of an attack of this rash.”—pp. 59 *et seq.*

The above remarks are practically of great value; but we must express our regret that the author did not enter more at length into a description of the latter stages, and severer forms

of this once formidable affection. True, as he observes, instances of a severe case of this disease are now extremely rare, because mercury is not used in the same quantities or with the same reckless perseverance as was wont at the period it first attracted attention; but they do occasionally occur nevertheless. Very recently we have seen an extremely advanced and aggravated case produced by the internal exhibition of corrosive sublimate by a quack, for the cure of some eruptive affection, and to a great number of pupils who had an opportunity of witnessing it, it appeared to be a new and nondescript disease. The authors who have professedly treated of it are not now in the hands of students, and as we know that Dr. Colles's book must be generally consulted, and will, in all probability, become a standard work of reference, we could have wished it to have been perfect in every respect, particularly as to cases which are not of every day occurrence.

The mercurial erethismus is described very much in Mr. Pearson's words; we shall therefore dismiss it and the third chapter with the following quotation, which being the result of our author's observation, and differing in some respects from the notions generally entertained, we regard as being of some importance.

“Although palpitation of the heart is the prominent system in this disease, we are to consider it only as one of a series of those effects which mercury produces when it acts as a poison, and not as owing to any peculiar tendency to injure that vital organ; for when mercury acts favourably on the system, it is so far from producing any specific bad effect on the heart, that in diseases of this organ attended with anasarca, orthopnoea, and effusion into the chest, it affords considerable relief, so much so, that the patient himself acknowledges its utility as soon as the gums become affected, by joyfully announcing to us the glad tidings that he is now enabled to lie down and even to enjoy sound sleep. Erethismus then is caused by mercury acting in the manner of a poison on the constitution. I never knew an example of its occurring after ptyalism was fully established; if a patient once have a regular sore mouth, we may continue the use of mercury to an indefinite period, and in any doses, without the risk of producing mercurial erethismus. When I say this, I speak of what accords with my own observation of this affection. For I am aware that Mr. John Pearson says, the subjects were men who had nearly, and sometimes entirely, completed their mercurial course: now, according to my observation, this affection comes on at a late period of a mercurial course, only in those cases where an increased dose has at length been employed with a view of inducing ptyalism, or where the ptyalism was slow in coming on; or where that which had been first excited has been allowed to subside, and that we are endeavouring to re-establish it.”

vouring to renew it, or rather to re-produce it. I have never seen any instance of its affecting a patient who had entirely completed his mercurial course. Indeed I feel perfectly confident that it will not affect any person while he is in a state of moderate salivation. I am aware that now and then instances have occurred, where mercury has appeared to lie dormant and inactive in the system for two or three weeks after it has been altogether laid aside, and that after this internal pyalism has come on. I imagine that when mercurial erethismus attacks men who had entirely completed their mercurial course, it must have been in some one of those very rare instances."

We have already far exceeded the limits we had at first intended, or than we usually allot to the notice of any new publication; and yet have we been obliged to omit a great deal that we consider of importance, particularly the chapter on Infantine Syphilis, to which, however, it is quite possible we may revert on a future occasion. We are not sorry that our observations or the extracts we have taken from the work should have reached such a length, because, we believe, that the reputation of the profession, and the welfare of the human race, would be greatly advanced by the removal of the doubts and difficulties that embarrass this subject, and by the reconciliation of opinions which are at present not only opposite, but contradictory. These objects can only be attained by each man stating fairly and honestly the results of his own experience, until such a record of accredited and authenticated facts shall be established, as will warrant the induction of general and universally-applicable principles. That something of this nature seems to have been the intention of Dr. Colles, we should be led to suppose from the whole tenor of the work. Throughout the entire, he leans upon himself alone: he does not even mention the name of a single writer on venereal since the days of John Hunter; he advances but few theories of his own, and he cavils not at those entertained by others: in short, the work is especially the work of Dr. Colles, and from the abundant extracts we have given, the reader will be able to appreciate the style and manner of its execution. For our own part, we have seldom experienced greater pleasure than in its perusal. It may be from the respect we entertain for the man, from whose practical lessons we have so oft derived instruction; perhaps, we consider that the experience and observation of nearly forty years cannot well have led to erroneous views of the operations of nature; or that we entertain somewhat similar views of the disease and of its treatment: these, and other considerations of a like description, may have led us to view the work with a far too partial eye. Yet, with the terror of such an imputation

before us, we shall not fear to assume that privilege which we freely concede to others, and to declare at once our candid and conscientious opinion. The book, like every other, has its faults; much has been omitted, the insertion of which would have rendered it more complete as a treatise on venereal, and perhaps, a little more care might have given us a better arrangement; yet, withal, do we deem it one of the best books that has issued from the press for some years, because it is most practically useful: and, certainly the library of the surgical practitioner on whose shelves it is not to be found, cannot be considered as complete.

A Literal Interlinear Translation of the First Four Books of Celsus de Medicina, with Ordo and Text, &c. By ROBERT VENABLES, A.M., M.B., Oxon.

THIS excellent Translation is well adapted to economize the time of students, and to allow even well-versed grammarians to imbibe the subjects treated in this difficult author, in one-fifth of the time hitherto necessary to unravel its intricacies. The translation is, according to the Hamiltonian method, interlinear: having the original text at the bottom of each page; thus affording to the student the means of perfecting himself in the text, and without trouble of referring to the construction.

For the Apothecaries' Hall, and other Boards, where a literal translation is required, that object is decidedly to be met with in this volume; indeed, so literal and so explanatory is the translation, that it sets aside the usual complaint against translations, namely, that they are *free*, and that students learn them off without being able to apply the several passages correctly when required to construe the original.

The Retrospective Address, upon Medical Science and Literature, delivered at the Fourth Anniversary Meeting of the Provincial Medical and Surgical Association, held at Manchester, July 21st, 1836. By JOHN GREEN CROSSE, Esq., F. R. S. Surgeon to the Norfolk and Norwich Hospital. [From the Transactions of the Provincial Medical and Surgical Association.] 1836.

THIS small octavo of eighty-eight pages must have required vast labour, and great learning on the part of Mr. Crosse, whose chief object was to offer in a short compass a *resumé* of

the improvements effected within the preceding year, on the various branches of the medical and surgical profession. As the publication of the Retrospective Address was entirely dictated by a wish for the advancement of medical science, and in no way partook of the nature of a bookselling speculation, we have been tempted (what, under other circumstances, might be justly considered as a piece of literary piracy) to transfer a large proportion of its contents to our own pages, and we have no doubt that our doing so will meet the approbation of Mr. Crosse. The following extracts we particularly recommend to the careful perusal of our readers, as being replete with valuable and novel matter.

“A curious case has been related which links physiology with practice. An infant was labouring under symptoms suddenly arising, and seeming to threaten death by suffocation; the physician, fortunately, discovered that the tongue was retroverted,* its apex reaching into the œsophagus; the tongue was readily replaced, with relief to all the symptoms, but the trouble recurred frequently. Many authors have mentioned this *swallowing* of the tongue; I knew one instance where it could be done at will without any serious inconvenience.†

“Some physiological illustrations may be drawn from the case related by Dr. Harrison,‡ of a lunatic pantophagist, who swallowed numerous pieces of iron. The most remarkable of contributions to our knowledge is the discovery of a microscopic *entozoon* infesting the human body, by Mr. Owen,§ who ranks amongst the first of British Zoologists. Upwards of fifteen distinct kinds of internal parasites of the human frame were known before, but none of so

* “*Kleinert's Repertorium*, June, 1835, p. 58.

† “This occurred in a lad, who, in the playful period of his recovery from fever, was asked to shew his tongue, and presented his open mouth with no tongue visible; as soon as his mouth was shut, he asserted that his tongue was in its right place, proving it to be so: there was such facility in retroverting the tongue into the pharynx, that he frequently repeated the trick afterwards. The only other recent instance I have found related, is somewhere recorded on the authority of Magendie. Yet M. Blendin (*Art. Langue in Dictionnaire de Méd. et de Chir. Pratiques*) follows Boyer in denying that such a displacement can be thus produced, and places the accounts of slaves suffocating themselves by tongue-swallowing ‘amongst the romance of our science.’—See ‘*Paraglosse Deglutitoria*’ in *Sauvages' Nosologia*, and *Rust's Handbuch der Chirurgie*, vol. xiii. p. 92.

‡ “*Dublin Journal of Medical and Chemical Science*, September, 1835, p. 8. —Numerous large pieces of iron, one four or five inches in length, were found in the colon and different parts of the intestinal canal, the contents of which were dark and ferruginous. The liver partook of the same deep ferruginous colour, whilst all the other solid viscera were free, ‘a proof of the venous absorption by the *venæ portæ*.’

§ “*Transactions of the Zoological Society*, vol. i. p. 315.—Twenty-five of these *entozoa* were found in the tensor tympani muscle!

minute a size, nor existing in such astonishing numbers, as this new species, the *Trichina spiralis*; in one portion of muscle which I possess there are, within a square inch, probably between one and two thousand. These *entozoa* have been found in all the voluntary muscles, and also in the semi-voluntary or respiratory, but, I believe, in no other texture of the body. This striking discovery has rapidly spread through the scientific journals of all countries, and the phenomenon is of such frequent occurrence, that already the subject has received further elucidations from several of our countrymen.* The *Cystercus adiposus*, not uncommon in the fat of swine and some other animals, has also been recently, for the first time, observed in the human subject,† abundantly occupying the cellular intervals of many of the voluntary muscles. Connected with this subject is the account published by Dr. Knox, of *entozoa*‡ found beneath the intestinal mucous membrane of the horse.”—pp. 8-10.

“A very simple fact, which any body might have ascertained, sometimes sets aside an ingenious theory, as happens by crystallized oxalate of lime§ being found in the *tubuli uriniferi* of the kidney. The existence of tubercles in the lungs at the age of *ninety-three*, substantiated by Dr. Christison,|| shews either that this morbid structure may arise at the most advanced period of life, or remain quiescent for very many years.

“One of the most surprising of pathological and preservative phenomena is the passing away, *per rectum*, of an invaginated and prolapsed portion of intestine, comprising all its coats, without the continuity of the canal being destroyed. This subject has been well elaborated by Dr. Wm. Thomson;¶ and it appears that of thirty-five cases, in some of which several feet of intestine were voided, a majority recovered.”—p. 12.

“It is usual to find yearly the announcement of *certain cures* for those diseases deemed and found hitherto, in the imperfect state of our art, *incurable*. The most prominent suggestion under this head is the treatment of cancerous affections by the chloride of zinc, employed in the form of paste; it can, of course, only avail

* “Dr. A. Farre and Mr. Paget, at St. Bartholomew’s Hospital; Mr. Hilton, at Guy’s Hospital; Mr. T. B. Curling, at the London Hospital; Mr. Wood, of Bristol: the contributions of these gentlemen are in the *London Medical Gazette* for 1835-6. Dr. Harrison (*Dublin Journal of Medical and Chemical Science*, vol. viii. p. 185,) and Dr. Knox (*Edinburgh Medical and Surgical Journal*, vol. xlv. p. 89,) have also observed these *entozoa* in the dissecting room, and minutely described them.

† “This fact is communicated to me by my former pupil, Mr. Baron.

‡ “*Edinburgh Medical and Surgical Journal*, vol. xlv. p. 92.”

§ “I have stated this fact in a ‘Prize Essay on the Urinary Calculus,’ p. 17. It proves that concretions of this description are formed in the *tubuli uriniferi*, and not, according to the hypothesis of Dr. Prout, ‘by oxalic acid meeting with lime in the *pelvis of the kidney*.’

|| “*Edinburgh Medical and Surgical Journal*, vol. xliii. p. 268.

¶ “*Edinburgh Medical and Surgical Journal*, vol. xlv. p. 296.”

where the disease is still local ; but the cases related by Drs. Canquoin,* Ure,† and Riofrey,‡ many of which occurred under the eye of renowned surgeons,§ prove that this escharotic destroys the scirrhus tumour speedily, leaving an ulcerated surface which often readily heals ; and it moreover induces no danger from absorption, which is a recommendation not possessed by the arsenical paste,|| an application formerly much employed and held in repute for the same purpose. The chloride of gold¶ is also said to have been tried with success in cancerous affections during the last year.

“As an auxiliary to the active antiphlogistic treatment of croup, warm local fomentations have been advised.”**—pp. 24, 25.

“The carotid artery has continued a favourite for experiments upon animals, and judging from numerous recent instances, it would appear to have been much experimented on in the human subject. Although some animals will bear a ligature to both carotids simultaneously,†† the human frame cannot sustain so great

* “*Mémoire sur un Nouveau Mode de Traitement des Affections Cancéreuses.* Paris, 1835.—Dr. C.’s method is fully detailed in the *London Medical Gazette*, Dec. 12, 1835, and subsequent Number, pp. 391—432.

† “*London Medical Gazette*, vol. xviii. p. 287.—The cuticle being first removed by a blister, the phagedenic paste is applied, composed of one part of chloride of zinc with two of sulphate of lime.

‡ “*New Treatment of Malignant Diseases and Cancer.* London, 1836. This writer says, the paste not only destroys the tumour, but ‘purifies the surrounding atmosphere.’ p. 59.—He uses the chloride of zinc mixed with different proportions of flour, and has applied it to a tumour on the inside of the mouth, also to the os uteri, with safety and good result.

§ “Mr. Lawrence, who permitted the trial of chloride of zinc upon his patients by Dr. Riofrey, has since tried it himself, and observes in a letter to me : ‘it is a convenient and effectual mode of destroying morbid textures, where the use of the knife may be objectionable, as in some of the cancerous affections of the face. Its action can be limited with perfect accuracy ; you can destroy it to any definite depth, according to the thickness of the stratum employed ; and the separation of the slough leaves behind a healthy granulating surface, which heals rapidly. Its immediate action is that of a powerful stimulant, causing great vascular excitement, with swelling, bright redness and severe pain, the last sometimes continuing twenty-four or forty-eight hours, or even longer. In two cancerous ulcerations of the face, where the disease, although of long standing, was superficial, it acted most favourably, and the cures have been permanent.’

|| “Above twenty years ago I noticed fatal cases from arsenic used as an escharotic.—*Sketches of the Medical Schools of Paris*, p. 45.

¶ “*Recamier in Revue Médicale*, Janvier, 1836.

** “A large sponge, soaked in hot water, and applied as hot as can be borne for twenty minutes to the neck just beneath the chin, until a vivid redness is induced.—*London Medical Gazette*, 1835.—Dr. Kirby uses common culinary salt, heated and applied in a flannel bag, so as to produce a rubefacient effect.—*Dublin Journal of Medicine and Chemical Science*, vol. viii. p. 333.”

†† “Professor Mayer of Bonn tied the carotids simultaneously in a dog, also twice upon rabbits, with success ; but in several other trials, the animals died, perhaps because the pneumo-gastric nerve was included in the ligatures.—*Edinburgh Medical and Surgical Journal*, vol. xliii. p. 467.—In numerous instances it has been found by experiment that the dog will survive a ligature simultaneously applied to both the common carotids.

and so sudden an interruption to the supply of blood to the sensorium; Professor Mott* has tested this question, and a case came under my own observation very recently,† shewing how fatal is the tendency of a ligature applied almost simultaneously to each of these arteries. An approximation has, however, been made towards ascertaining the shortest interval at which the second carotid may be safely tied after a ligature to the first, and it has been safely done at an interval of thirty-eight, seventeen, and even twelve days.‡ Amongst the most striking of these cases, is that related by Professor Kuhl, of Leipsig,§ who, on account of a pulsating aneurismal tumour of the scalp, arising from a wound of the occiput, and extending over nearly the entire surface of the head, attended by frequent hæmorrhages, first placed a ligature on the left common carotid; the procedure only partially subduing the disease, and frequent hæmorrhages from the affected portion of the scalp still occurring and threatening life, a ligature was put upon the right common carotid after twenty-seven days; this was followed by convulsions, but after a train of very troublesome symptoms, the patient recovered and was cured of his disease. It is worthy to be noticed that in this, and also in other like cases, some days after both carotids had been tied, heaviness and throbbing in the head have occurred, requiring free venesection, the sensorium being unable to bear the impetus of the returning circulation after having for a time received so scanty a supply of blood.

“The tying of both carotids must, however, be regarded as somewhat hazardous, even when an interval is allowed; and the interval which may be considered safe, so far as regards the supply of blood to the encephalon, remains yet to be ascertained, and is undoubtedly variable according to the inappreciable differences in individuals. Even before applying a ligature to one carotid, the operator should assure himself that the other remains pervious.||

* “Both carotids having been tied nearly simultaneously, with the view of arresting the growth of an enormous tumour in the situation of the parotid gland, the patient survived about twenty-four hours.

† “An attempt having been made to remove a tumour of small size, implicating the right parotid gland, the operator on this sad occasion wounded a large artery deeply situated, anterior to the mastoid process; a ligature was put upon the right common carotid, but without any good effect; the hæmorrhage continuing, I was called on the emergency; tying the left common carotid was suggested, but even *pressure upon it*, so as to interrupt the circulation, *produced insensibility and convulsion*, and seemed to threaten extinction of life; *the experiment was twice made with the same effects*; by a dip of the needle I after some time inserted a ligature which stopped the bleeding vessel. The respect I entertain for professional decorum precluded my again seeing the patient, who lost his life by the undertaking which he was persuaded to believe necessary to save it.

‡ “Dr. Mussey in America.—See ‘*Cyclop. of Anat. and Phys.* by Dr. Todd,’ article ‘*Carotid Artery.*’

§ “The case is related in *Radius and Clarus’ Beiträge zur practischen Heilkunde*; also at length in the *London Medical Gazette*, vol. xvi. p. 816.

|| “After a ligature was put on one carotid, the patient ‘fell into a deep

"A ligature has been put upon the carotids in cases of epilepsy, and also of hemiplegia,* the former disease has sometimes been relieved, and even removed for a time; in hemiplegia the experiment has not diminished the disease, nor was there, indeed, much reason to expect it, if we recollect that a paralytic state has been repeatedly induced by the very same proceeding."†—pp. 31, 32.

"Dr. Fricke, of Hamburg, has treated varicocele, circocele, and varix, by passing a fine thread through the dilated vein, and allowing it to remain from twenty-four to forty-eight hours, according to the degree of increased action excited; and after trying the method in sixty cases, he recommends it as being not more simple in its performance than it is safe and certain in its effects.‡ In the printed notices of this method, it has been represented that the vein is *obliterated*, but in the only instance in which Dr. Fricke has dissected the part, he found the vein pervious and reduced to the right calibre; this zealous surgeon has favoured me with the full particulars of the case, with his reasonings upon it;§ and the plan of treatment for which we are indebted to him, seems, as far

sleep, and died shortly afterwards without awaking; the other carotid was found obliterated by a coagulum nearly as low as its origin from the aorta.'—*Todd's Cyclopædia of Anatomy and Physiology* under 'Carotid Artery.'

* "*Transactions of the Medical and Physical Society of Calcutta*, vol. v. p. 345.—Where one ligature only was applied, it was put upon the carotid artery *opposite* to the side of the body affected with paralysis.'

† "In several recorded instances of ligature to the carotid artery, hemiplegia, more or less complete, followed the operation, affecting *the side opposite* to that on which the ligature had been applied."

‡ "An extreme case of varicocele was thus cured in seven days—(*Zeitschr. für die gesammte Medicin*, vol. i. p. 13.)—The usual time required for a cure is from a few days to three or four weeks. Not infrequently abscesses form in the contiguous cellular texture, retarding a perfect recovery, but bringing no serious consequences. Dr. Fricke assures me, that in only a single instance has he met with trouble from phlebitis after this treatment, which we find to arise, occasionally, even after common venesection. In one case, however, the cure was not complete till above five weeks had elapsed; and in another it was delayed by portions of the thread remaining, which caused abscess.—Two silk threads were passed through the varicose saphena major vein, and kept in for thirty-six hours; in fourteen days the varix was reduced to half its former size.—*Ibid*, vol. i. p. 318.

§ "The patient, of a highly scrofulous habit, was treated for a varicocele, by the insertion through the enlarged vein of three silk threads at a small distance from each other; after twenty-four hours, the threads were removed. The reaction induced was moderate; two small abscesses formed, which soon healed, and in fourteen days there was scarcely any trace of disease. After two months, on account of a slight relapse, a single silk thread was inserted and kept in as before. The inflammation caused by it was severe, requiring bleeding and strict treatment; but the varicocele was perfectly cured. Seven months after the first operation, the patient died of small-pox; and on dissection the operated vein was found not obliterated, but of the same calibre as the corresponding vein of the other side of the scrotum. Dr. Fricke does not, however, infer that the veins of the extremities would be in the same state after this treatment as those of the scrotum. In varicocele, after having inserted the thread, he assists the cure by pressure with adhesive plaster, the same as for *orchitis*."

as I can judge, to be the most philosophical that has been thought of by the numerous cultivators of this branch of surgery."—pp. 37, 38, 39.

"A new proposal to treat *orchitis** by firm pressure with strips of mild adhesive plaster is accompanied by the assurance, on the part of its originator, that it precludes the necessity for leeching, fomenting, and poulticing, whilst it quickly relieves the pain, does not require strict recumbency or rest, and cures more rapidly than the ordinary method."—p. 49.

"The diseases of the placenta supply an ample scope for inquiry, and have not, I think it is allowable to say, been so systematically and so minutely treated of in this country, as in some others. The elaborate paper of Dr. Simpson† is, on this account, the more entitled to our notice; he has fully detailed all that has been written and well authenticated upon congestion of, and extravasation into the placenta, as well as upon inflammation occurring in this very vascular and peculiar mass, inducing adhesion to the uterus, effusion of lymph with induration, and abscess. We have further contributions to this branch of pathology in the presence of tubercles,‡ and likewise of bony spiculæ,§ observed in the placental mass. The entire absorption of the placenta in utero, has not, that I find, been observed with us, though familiar to German writers. The hydatidous placenta I have ventured to represent as a disease consequent upon regular impregnation,|| and explainable by the disease attacking the placental mass, and leading commonly to the destruction of the minute foetus, which becomes absorbed, or diffused in the liquor amnii; the hydatidous product still going on increasing, acquiring sometimes the volume of several pints; viewing it in which advanced stage, pathologists have not adverted to the probability of a foetus having formerly been present. This disease, and most others occurring in the placenta, may be enumerated amongst the causes of abortion; and when we add the evils of premature, partial, or delayed separation of the placenta, enough has been glanced at to arrest for a moment the ingenious physiologist's, not less than the scientific

* "Dr. Fricke, in *Zeitschrift für die gesammte Medecin*, Hamburg. 1836, vol. i. p. 29.—The author is very minute in his directions for applying the plasters, which requires to be done with great accuracy, in order that the pressure may be both considerable and uniform, and fretting of the scrotum avoided."—See *British and Foreign Medical Review*, vol. ii. p. 253.

† "Edinburgh Medical and Surgical Journal, vol. xlv. p. 265.

‡ "London Medical and Surgical Journal, vol. viii. p. 798.—The tubercles were in various stages of development, and scattered over the whole placental mass, some of them suppurating; the child was born alive at the eighth month.

§ "Metrorrhagia occulta from ossification of the placenta, by Dr. Hoffman, in *Neue Zeitschrift für Geburtskunde*, vol. iii. p. 265. The placenta was full of bony spiculæ, and its uterine surface covered with them.

|| "Transactions of the Provincial Medical and Surgical Association, vol. i. p. 303."

accoucheur's attention upon this subject, so *pregnant* with interesting and practical information."—pp. 51, 52, 53.

"The use of the *speculum vaginæ* must be regarded as a great practical improvement, enabling us to detect, by submitting to ocular inspection, the different morbid alterations of the os uteri, and to treat inflammation of this part by the direct application of the most powerful antiphlogistic means; not only can we observe, but distinguish and effectually cure ulceration of the os uteri,* and even, as Drs. Emery and Ricord† show in their daily practice, make applications to ulcers within the cavity of the uterus itself, thus attacking, in the stage in which they are quite remediable, many diseases which, until a very modern period, were allowed to progress towards so bad a condition as to be only manageable by excision of the part, or (as much more commonly happened) proceeded uncontrolled to the patient's destruction. We may hope that, even in this country, the speculum is getting into general use;‡ and of much more consequence does it seem for the surgeon to study its employment, than how to excise the cervix uteri. The advantages of the stethoscope in the hands of the accoucheur, also deserve to be briefly alluded to here, numerous instances yearly being promulgated where not only the stage of existing pregnancy is determined by it, but the life of the *fœtus*, or the presence of duplicates, ascertained.

"Several polypi of the uterus have been removed whilst still within this organ,§ after *ergot* or *Lobelia inflata* had been admi-

* "The presence of chancres at the os uteri, and of specific gonorrhœal inflammation and discharge, at the neck of this organ, has been ascertained through the use of the speculum.

† "*Bulletin Général de Thérapeutique Med. Chir., Septembre, 1835.*—The speculum is used not only to explore the state of disease, but to facilitate the application of remedies. We apply leeches to the os uteri in congestion and inflammation of the part; and when ulceration is detected, the surface is touched every few days with lint soaked in a strong solution of nitrate of silver or mercury, cold water being afterwards injected, to prevent excoriation of the healthy parts. An ulcer is inferred to occupy the interior of the uterus by the nature of the discharge (*un liquide blanchâtre ou jaunâtre plus ou moins épais ou coagulé*) observed to issue from its cavity. The practice of Lisfranc in these cases, at *La Pitié*, resounds throughout Europe; by the use of a small mirror for reflecting the light of a candle, he illuminates the os uteri under the use of the speculum, and applies the solution of nitrate of silver with a piece of sponge attached to a wooden skewer, which is so useful an instrument in many operations that I have denominated it a *stick-sponge*.

‡ "Dr. Balbirnie's Treatise, setting forth the present practice and great improvements, by French physicians, in this department, must be regarded as a seasonable contribution: '*The Speculum applied to the Diagnosis and Treatment of the Organic Diseases of the Womb.* 1836.'

§ "The os uteri just admitted the surgeon's finger to feel the polypus, and *ergot* having failed to produce even its partial expulsion, and the patient's health sinking, a ligature was successfully applied whilst the entire polypus was still within the uterus.—*Rust's Magazin für die gesammte Heilkunde*, vol. xlv. p. 79. Dilatation of the os uteri produced by the administration of *Lobelia inflata*, and a ligature put upon the polypus within the uterus.—*Edinburgh Medical and Surgical Journal*, July, 1835."

nistered; although the ligature was employed in these cases, I observe excision to have been preferred, and found equally safe from hæmorrhage, within the date of my researches for this occasion."—pp. 54, 55, 56.

"Where the completely inverted uterus became prolapsed *post partum*, I find it to have been effectually returned, after having remained for above one month so displaced.* In several other instances, the inverted organ being irreducible, it has been removed by ligature.† A case of the uterus inverted and prolapsed, which, with one ovarium, separated and came away several hours after delivery, has been contributed by Dr. J. C. Cooke;‡ the patient recovered, and her subsequent history supplied the materials for some physiological remarks; there was sudden and immediate suppression of the lacteal secretion, shewing the intimate consent between the uterus and the mammary glands, and proving that neither the presence of the child ("*a stimulus of necessity*") nor maternal affection, was sufficient for the purpose.

"Professor Naeglé, an indefatigable cultivator of obstetricism, has described a cause of dystocia in agglutination of the external orifice of the os uteri,§ arising between conception and labour; he regards it as distinct from ulcer, deformity from cicatrix, and the superadded organic texture for which incision has been advised; although this agglutination is so soft as to be broken through with the finger, if it be not detected the uterus may, during expulsive efforts, be so thinned under pressure of the child's head that laceration takes place. Complete occlusion of the os uteri has also recently been met with,|| demanding the free use of the bistoury, ere labour could progress. In a case of dystocia, detailed by Dr. Rigby,¶ in a primiparous patient, a membranous band extended across the vagina, from the symphysis pubis to the perinæum, requiring to be divided by the bistoury; the same treatment we

* "*American Journal of the Medical Sciences*, vol. xvi. p. 81.

† "M. Lasserre removed the entire organ by ligature; the cure was perfect in a month; no menses afterwards, '*mais la femme est restée sensible aux voluptés conjugales.*'—*Encyclographie des Sc. Med.*, vol. xxxvi. p. 179; Août, 1835.—In this work there is another instance of the same operation by ligature, and the same remarks are appended as to *menses* and *coitus*.

‡ "*Ryan's Medical and Surgical Journal*, March 12, 1836.—The case is also given in a separate brochure. Although one ovary is believed to have remained, and no impediment to coitus existed, the condition of the female is said to be the reverse of what is stated in the preceding note.—*Case of Loss of the Uterus and its Appendages soon after Delivery, with Remarks on the Propriety of removing that Organ in Cases of Inversion or Scirrhus*; by J. Charles Cooke. 8vo. London, 1836.

§ "*Archives Générales de Médecine*, Octobre, 1835.

|| "*Entbindung bei vollkommen verwachsenen Muttermunde*, in *Siebold's Journal für Geburtshülfe*, &c. 1835.—The patient was twenty-three years old, and the complete closure of the os uteri was ascertained by ocular inspection as well as by the touch.

¶ "*London Medical Gazette*, vol. xvi. p. 893.—The band obstructing labour was supposed to have been congenital.

know to be sometimes necessary, where the vaginal passage is narrowed by cicatrices, after sloughing or ulceration; but the ease with which such obstructions give way astonishes those who are not well experienced, and the knife needs to be only very sparingly employed.*

"In no branch of midwifery have more contributions been furnished, within the recent period to which I refer, than in regard to certain *varices*, attaining an enormous size and bursting so as to form sanguineous extravasation into the labia or cellular texture of the pelvis and vagina, often with a suddenly fatal result. Within the sphere of my own observation, one such case has recently transpired, which led to a coroner's inquest,† as unfortunate cases in this line of practice are not unfrequently found to do, affording strong proof of the heavy responsibility incurred by the accoucheur. The names of Philippart,‡ Naegle, jun.& Stendel,|| and others,¶ may be enumerated, in the impossibility which I find of dwelling on the subject; and the elaborate paper of Mr. Ingleby, upon tumours obstructing delivery,** may be consulted as affording the best

* "After extensive sloughing, in a very difficult first-labour, the vagina was nearly obliterated by cicatrization, the aperture leading to the os uteri being only just large enough to admit a probe, as I ascertained by repeated examination. Impregnation notwithstanding again took place, and at the full term a child was born after a labour of a few hours, the cicatrices rapidly yielding after slight incisions with the bistoury.

† "During a protracted labour, rupture of the left labium took place, to the extent of two or three inches, followed by a great loss of blood; the patient died undelivered.

‡ "*Bulletin Médical Belge*, vol. i. p. 90.—During expulsive efforts in labour, the left external labium became greatly swollen, and burst *avec un bruit*; great loss of blood, syncope, and death in an hour. '*L'enfant fut laissé dans le sein de sa mère, et trouva la mort où il recut la vie!*'

§ "*Heidelberger Klinische Annalen*, vol. x. pp. 417-31.—Four cases are here collected; one fatal; in a second, the swollen labium burst, the coagulum was removed, styptic powder introduced, (*plugging and pressure would have answered better,*) delivery of a dead child effected by the forceps; recovery: in a third, the labium burst whilst the forceps were being applied, the blood lost appeared arterial; pressure for three hours; delivery then of a dead child with forceps; recovery. In the fourth case, ten ounces of blood were removed from the labium by an incision, and labour was afterwards completed with safety to child and mother.

|| "A woman near the conclusion of her third pregnancy observed a swelling of the labium, which diminished on her being blooded, but soon returned. This tumour burst during labour; between six and seven pounds of blood were lost; the patient fainted and expired. Delivery was speedily completed by the forceps.—*Kleinert's Repertorium*, Mai, 1835, p. 31.

¶ "Several cases (none fatal) are related in *Journal de Méd. et de Chir. Pratiques*, Octobre, 1835.

** "*Edinburgh Medical and Surgical Journal*, vol. xlv. p. 107.—Drawing off the serum, by puncturing with a fine curved needle, is recommended for speedy relief. (p. 108.) This treatment is only applicable after the extravasated blood has coagulated. The subject has been historically treated by Deneux: *Mémoire sur les Tumeurs Sanguines de la Vulve et du Vagin*."—Rest, horizontal position, occasional bleeding, pressure, and expediting delivery, comprise the principal rules of treatment. A caution has been given not to open such tumours whilst the blood is fluid, but to wait, if possible, till it has coagulated.

rules for discovering and treating such cases, which are so manageable if carefully attended to in an early stage, but often fatal through the oversight of a routine-practitioner, who fails to comprehend the disease till a sudden hæmorrhage creates danger. It should teach the accoucheur caution in regard to quitting his patient, when he finds that fatal hæmorrhage* may shew itself at so remote a period as thirty-six hours after delivery."—pp. 57, 58, 59, 60.

"The question of delivery after death has been ably treated of and asserted by an experienced operator to be as quickly effected as the Cæsarean operation, which it is scarcely allowable to undertake when death results from any gradual disease, as the death of the foetus generally precedes that of the mother.

"Conception takes place, and pregnancy advances, frequently under very severe diseases of the uterus—polypus, fibrous tumour in the substance of the organ, eating ulcer at the neck, ovarial tumour, both mild and malignant, and even when there is an extra-uterine foetus still in the abdomen.† I speak from my own observation, in all these complications, save the last; and recent authorities confirm the same without an exception. Malignant soft tumours, whether of the uterus or ovarium, when they present themselves in the vagina at an advanced period of utero-gestation, give to the less experienced medical attendant the idea of a *placenta prævia*, and many have acted under this erroneous impression. One of the most extraordinary cases I ever was summoned to, proved to be of this description; the operator passed his hand through the soft tumour in the vagina, and, missing the uterus, entered the abdominal cavity, seized and ruptured the gall-bladder, and actually delivered numerous biliary calculi *per vaginam*!‡

"Where tumours narrow the pelvis, the inducing of premature labour has been suggested;§ but if such tumours be moveable,

* "Dr. Rigby, in *London Medical Gazette*, vol. xvii. p. 14."

† "Dr. Ramsbottom, in *London Medical Gazette*, May 16th, 1835. Lee, Ingleby, Ashwell, and others, have, in the past year, treated of tumours complicating pregnancy. An instructive case, giving rise to an inquest, occurred near Bristol; the prolapsing tumour was mistaken for *inversio uteri*, and death ensued from rupture of the uterus, the surface of which was studded with numerous tumours.—*Ibid.* August 29th, 1835, vol. xvi. p. 765.

‡ "I communicated this case some time since to Professor Naeglé, for publication in a foreign Journal. I was not summoned until after the decease of the patient; and in the presence of three practitioners I opened the body. Numerous fungoid tumours arose from the right ovarium, and one of them, descending into the pelvis, had presented in the vagina, and being torn, furnished the hæmorrhage; pieces of this soft tumour were removed, and appeared to be the placenta, and some loss of blood continuing, delivery was determined upon, but no foetus could be found; the hand of the accoucheur had passed through the soft tumour occupying the vagina, into the peritoneal cavity, and the gall-bladder, filled with biliary calculi, had been seized in the search for the foot of the foetus. Dissection verified the occurrences as I have stated them; the uterus and its appendages are in my pathological collection.

§ "Dr. Ashwell, in *Guy's Hospital Reports*, Part ii. p. 301.

and every consultant must in such cases have met with them so, the chance of the difficulty being overcome by pushing them aside, is so considerable, that labour may with propriety be deferred till its natural period, unless there be at the same time a contracted bony pelvis. The necessity of bringing on labour prematurely, to prevent rupture of the uterus in the site of the cicatrix after the Cæsarean operation, can rarely be admitted, and may be restricted by the same rule as the condition of the bony pelvis.”*—pp. 66, 67, 68.

* “ Under the impossibility of noticing every valuable fact or practical suggestion in this department, I may refer :—1. To the successful treatment of amenorrhœa, by sinapisms applied to the mammæ.—*Gazette Med. de Paris, Août, 1835.*—2. To the same, by aloetic injections into the rectum.—3. To puerperal peritonitis with suppuration, abscesses opening at umbilicus, recovery.—*Bulletin Méd. Belge, Février, 1835.*—4. To two out of nine cases of puerperal fever fatal from abscess of ovarium bursting into the peritoneal cavity.—*Dublin Journal of Medical and Chemical Science, vol. viii. p. 78.*—5. To suppuration of the lymphatics of the uterus after labour.—*Giornale Med. Chir. di Pavia, Maggio, 1835.*”

SCIENTIFIC INTELLIGENCE.

Inquiry into the Nature and Causes of Goitre, by Assistant Surgeon JOHN M'CLELLAND, Member of the Royal College of Surgeons in London, and of the Medical and Physical Society of Calcutta.—[We have thought it right to reprint the whole of the following Essay on Goitre, which appeared in a valuable work on the Geology of Kemaon, printed at Calcutta in 1835. We have no doubt that the author, Assistant Surgeon *John M'Clelland*, will feel obliged to us for giving his researches a more extensive circulation among medical men than they could have attained in a work strictly Geological. Mr. M'Clelland's essay contains most interesting details, and exhibits a most praiseworthy example of zeal and indefatigable industry in collecting and verifying facts.—*Editors of Dublin Medical Journal.*]

INTRODUCTORY SECTION.—Before the following researches on the subject of Goitre, it may not be devoid of interest to submit a brief comparison between the military posts of Lohooghat and Peto-ragur, including the condition of health and local circumstances of the troops at each place.

To be successfully treated, the subject of Goitre only requires to be taken up systematically, and to be pursued independent of theory, with a view merely to the collection of data, or what Bacon called—*Forms*. Such a method of inquiry may be repugnant to the finer qualities of the mind, which are naturally impatient of the restraints of methodical philosophy, but the records of medicine fully shew, how inadequate the common mode of reasoning has proved, when applied to the elucidation of this disease.

Lohooghat is a small valley elevated about 5562 feet above the level of the sea,* it is half a mile broad, and one and a half long, lying in the direction of east and west. Its mean temperature is about 60° Fahrenheit. It is surrounded by hills that rise from five hundred to a thousand feet above the cantonment, (which is situated in the centre of the valley,) except on the west, where the circle is broken, giving the whole the character of a crescent, with its aspect to the west.

Clay-slate, containing occasional small beds of gypsum and quartz,

* Webb, vol. iv. Geograph. Trans. Lond. p. 410.

and covered by a stratum of red ferruginous clay, and a layer of vegetable mould, constitute all the rocks that occur. Numerous springs emerge from the clay-slate, causing streams which unite in the southern extremity of the valley, before they join the Racessa, or Lohoo river; these waters only contain a little earthy matter, together with a small portion of muriat of soda and sulphat of lime; the whole solid extracts not amounting to more than $\frac{1}{13000}$ part of the volume of water.

A detachment of two companies of the 30th Regiment Native Infantry took possession of this post in December, 1831, and after three years subsequent residence at Lohooghat, not one of the sepoys, or of the numerous train of camp-followers, consisting of about 400 men, women, and children, had contracted the slightest affection of the thyroid gland.

The cantonment of Petoragur is fifteen maritime miles, in a northerly direction from Lohooghat, and is erected near the summit, but rather on the southern acclivity of a low ridge, that extends into the centre of Shore valley. The general level of the valley is 5000 feet, while the site of the cantonment is 5462 feet above the sea.—The situation is consequently more open and commanding than that of Lohooghat, there being no higher elevations within the distance of three or four miles, and from these, direct communication is broken off by a broad expanse of richly cultivated valley, which intervenes, except on the west, where a mountain ridge, equal in height to the loftiest elevations at Lohooghat, approaches within a mile; and it is from this ridge that the eminence on which the cantonment is erected is given off.

A lofty mountain, above 8000 feet high, forms at a distance of five miles the southern boundary of the valley. On the west, and north-west, altitudes of seven thousand feet approach within from one to two miles; and on the east, and north-east, we have altitudes of seven thousand feet at three miles' distance. On the south-west, on the north, and on the east, the mountains are divided by deep chasms and ravines, which open the lowest portions of the valley to the currents of air passing from these directions.

From simultaneous experiments made at both places with thermometers, it may be inferred, that the mean annual temperature is at Petoragur about $1^{\circ} 40'$ higher than at Lohooghat. The rocks of which this vicinity is composed, are clay-slate; supporting extensive deposits of transition and floetz limestones, which give a rugged aspect to the surrounding mountains, as well as to the site of the cantonment.

Beds of greenstone and graphite, containing copper and iron pyrites, are extensively interspersed between the limestone and slate. The pyrites are also found disseminated through the strata seams and rifts of the limestone; while the lower levels of the valley are composed of beds of gravel—the debris of surrounding mountains cemented with calcareous matter. An examination of four of the principal springs, whose waters are used by the residents in this canton-

ment, proved them to contain a considerable excess of carbonic acid, in combination with very minute portions of alkaline and earthy matters, so as only to afford one part of solid extract out of from four to eight thousand parts of water. Two of the springs discovered a trace of iron and sulphurated hydrogen gas.

This post was also occupied by two companies of the same regiment, and both detachments entered the hills together, and were each of the same strength, and attended by the same number of camp-followers.

During the first year, no case of Goitre occurred in either detachment; at the end of the second year, five cases were discovered among those composing the force at Petoragur; and during the next six months, three or four more were affected; and at the end of the third year, fifteen cases of Goitre had appeared at the same place.

It will be seen from the annexed table, that the whole number of sick admitted into Petoragur Hospital, is nearly twice that of the admissions into the Hospital at Lohooghat; and that dysentery, diarrhoea, and fevers, are above one-third more numerous at the former, than the latter place—a circumstance which is indicative of the greater intensity of endemic disorders generally in the district where Goitre is found.

COMPARATIVE VIEW

Of the Sickness that occurred respectively at Lohooghat and Petoragur, during the same period of Time, amongst an equal Number of Strangers similarly situated.

Detachment of two Companies 30th Regiment N. I. stationed at Lohoghat, from December, 1831, to December, 1834.														Detachment of two Companies 30th Regiment N. I. stationed at Petoragur, from December, 1831, to December, 1834.													
DISEASES.							DISEASES.							DISEASES.													
Remaining Sick on entering the Mountains.	Since admitted into Hospital.	Total.	Discharged from Hospital.	Died.	Remaining 31st Dec. 1834.		Remaining in Hos-pital on entering the Mountains.	Since admitted into Hospital.	Total.	Discharged from Hospital.	Died.	Remaining 31st Dec. 1834.															
Asthma,	0	3	3	0	0	Apoplexy,	0	1	1	1	1	0	Fourteen persons received medicine in the lines of Pe-toragur for the cure of incipient goitres; while one person who took no remedy, left that post with a goitre of consider-able size.														
Diarrhoea,	0	32	32	0	0	Cholera,	0	4	4	4	0	0															
Dysentery,	0	7	7	0	0	Dysentery,	0	88	88	88	1	0															
Fevers,	0	167	167	0	0	Diarrhoea,	0	5	5	5	0	0															
Mania,	0	1	1	0	0	Fevers,	0	232	232	232	1	0															
Ophthalmia,	0	1	1	0	0	Ophthalmia,	0	2	2	2	0	0															
Pulmonary affections,	0	6	6	0	0	Pulmonary affections,	0	10	10	10	1	0															
Rheumatism,	0	19	19	0	0	Ulcers, chiefly of the feet,	0	58	58	58	0	0															
Enlarged spleen,	0	1	1	0	0	Rheumatism,	0	46	46	46	0	0															
Syphaloid diseases,	0	7	7	0	0	Syphaloid diseases,	0	14	14	14	0	0															
Small-pox,	0	1	1	0	0	Slight injuries,	0	21	21	21	0	0															
Ulcers, chiefly on the feet,	0	44	44	0	0	Sprains,	0	3	3	3	0	0															
Wounds,	0	2	2	0	0	Enlarged spleen,	0	2	2	2	0	0															
Total, Lohoghat,	0	281	281	0	0	Total, Petoragur,	0	486	486	486	4	0															

SECTION II.—*Inhabitants of Primitive Rocks.*—In the Philosophical Transactions for the year 1784, it was shewn by Mr. Saunders, that the theory which ascribed the cause of Goitre to the use of snow water, was incorrect.* It would be useless to enumerate the different theories which have since been suggested, in order to explain the cause of the complaint. A reference to the latest of these will shew the little success that has attended the inquiry.

It has perhaps been my good fortune to be more favourably placed for conducting the inquiry, or more indefatigable in collecting facts of a nature, that it would have been utterly impossible to have collected without great labour. Not indeed, such as deserves to be ranked either scientific or literary, but bodily labour, such as few could endure in a foreign climate.

During the course of the inquiries contained in the forgoing part of this work, I was struck with the frequency of Goitre in one portion of the district; while the other was almost perfectly exempt from the complaint, although an equality of moral as well as physical circumstances appeared to affect the whole. The external Alpine characters of the province are the same in every part, the inhabitants all belong to the same tribes of Hindoos, and are subject to fewer irregularities in their mode of life than any other people in the world. In such a field there could be little merit in eliciting highly important facts connected with this intricate subject.

That portion of Kemaon which lies on the south of the Ramesa river, is composed of siliceous and argillaceous rocks of the primitive class. The oldest of these is granite, which penetrates through the newer members of the series, and forms a lofty ridge about eight thousand feet high. In the centre of this ridge there are numerous small valleys, some of them seven thousand, and others as low as three thousand, feet above the sea, inhabited by persons who, some to avoid the winter's cold of their native mountains, and some to avail themselves of pasture for their cattle, descend into the plains, and are absent from their villages for five months every year. From inquiries which I made amongst these people, I found them to be affected with Goitre in the proportion of one in five hundred; but as they do not constantly reside in the mountains, they are excluded from the more minute statistic details.

The north-eastern acclivity of the chain of mountains above-mentioned, is intersected by numerous deep river valleys and ravines, as well as by low mountain ridges, which afford a climate more congenial to the feelings and wants of the inhabitants, who here reside constantly in their villages. Of these villages, forty-six have been visited; but two of their number having been only occupied for three or four years, are excluded from the general view: so that the

* The merit is bestowed on Dr. Saunders, the author of a celebrated treatise on mineral waters, which work I have never had an opportunity of seeing. Mr. Saunders, a surgeon in the service of the East India Company, refers to the frequency of Goitre in the Island of Sumatra, where snow never falls, long before Dr. Saunders's work on mineral could have been published.

number of villages on the south of the Ramesa river, which we are now to consider, amount to forty-three, and contain a population of 3700: of this number, which I examined, I found only seventeen persons affected with the Goitre, and these were exclusively adults. The different localities of these villages are as diverse as can well be imagined. Some are erected on narrow ridges, others in deep valleys, surrounded by abrupt and lofty mountains; others on rugged declivities, between lofty peaks on the one side, and dark ravines on the other, into some of which the sun can scarcely penetrate. The different altitudes of these villages vary from two thousand to six thousand feet.

Let us now cross the Ramesa river, and enter the district of Shore, whose geological distinctions have been pointed out in a former part of this work; and we find that an eighth part of the people are affected with Goitre. Yet the whole inhabitants of the province are equally circumstanced with respect to religion: they intermarry, have the same customs, and are affected alike by moral and political influences; and finally, the tract in which the disease prevails is the richest and most fertile portion of the province.

The natives themselves impute to the quality of waters a powerful influence over their state of health; and when it is recollected, that water and farinaceous vegetables constitute the chief diet of Hindoos, any impurity of that fluid would produce effects more readily upon them, than on persons whose food and habits are less simple; but whether they are right, or wrong, in ascribing the prevalence of Goitre to the impurity of particular waters, I shall not here stop to inquire. A subject on which so many conflicting opinions exist, requires to be elucidated by such facts as, from their number, force, and simplicity, can lead to no erroneous interpretation; and in collecting these facts, the method I adopted, on observing the prevalency of the disorder in one great section of the district, and its absence in another, was to mark the physical characters by which these places were distinguished from each other. The consequence was, a perfect agreement in external aspect, altitude, and climatology, but a very marked difference in their geognostic relations; and this distinction, which was even traced down to the very villages in which the disease is found, with such perfect nicety as to enable one almost to pronounce *a priori*, on examining the rocks of a neighbourhood, whether the inhabitants of it are affected with Goitre or not.

In pursuing the inquiry farther, it is found that every village is not equally affected in the same neighbourhood, but that some are quite exempt, and others affected to the extent of half their population; and this difference is not found to depend on any accidental or transitory cause, such as usually influence epidemic complaints; but has always affected the inhabitants of a particular village, while those of adjoining hamlets have continued perfectly, and permanently free from the complaint.

That this does not altogether depend on hereditary predisposition is rendered certain, by the numerous cases of persons who, having

changed from a healthy to an unhealthy village, have become the subjects of the disease; and from the tumours of those affected becoming stationary, and even disappearing entirely during a residence in a healthy village. The following details of facts on which the foregoing statements are founded, will not, I trust, (although they are tedious,) be thought unworthy an attentive perusal. In order that we may proceed on some fixed and sure principles, I shall not include in the statistic notices any village that has not been inhabited for at least nineteen years, or since the period at which the province fell into the hands of the British. For the same reason, I shall also exclude the villages adjoining and connected with the military posts; but I shall avail myself of these sources when they may serve to illustrate any fact of importance. To prevent the confusion of names on the map, I shall distinguish the various groups of villages to be noticed in this section alphabetically.

A. Villages of Rykote and Patan, six in number; they are situated two miles north of the military post of Lohooghat. The Patan villages are erected on the southern foot of a lofty mountain, and those called Rykote are surrounded by mountains distinguished by the same name, which ascend from 1000 to 1500 feet above them. The villages are elevated about 6000 feet above the sea, and are erected on an iron-clay, derived from the disintegration of clay-slate. Their mean annual temperature is about 60°. They contain 200 inhabitants, all of whom are free from Goitre.

B. Nine villages situated on the N. W. acclivity of the mountain called Gome-dace; their names are Nakote, Gourouly, Choka, Pimtolly, Jata, Borinkora, Neltokora, Chopota, and Seiligna. They contain 800 inhabitants. Four cases of small Goitre only have been found among them, and the four persons are aged; they informed me they acquired the disease in their youth, while residing in a distant part of the country. These villages are erected on primitive and transition clay-slates—mean altitude about 4300 feet, mean annual temperature about 64°.

C. Four small villages on the eastern declivity of Gome-dace.—They contain 150 inhabitants, who are all free from Goitre. These villages are erected on primitive and transition clay-slates—mean altitude 3809 feet. The situation of these villages in the valley of the Mahi Kalee river, renders their temperature high, particularly as they are sheltered from all but the north and south winds.

D. Villages of Pansall, Cheemrouly, Konera, Leno Simela, Chomonnee, Lund, Katee, and Katully, nine in number, which contain 800 inhabitants. They are situated on low ridges and deep ravines. Mean altitude, about 3700 feet. Mean temperature,* 70°. They are erected on primitive clay-slate: only three cases of Goitre could be found amongst their population.

* Temperature does not always depend on altitude in these cases, but rather on local circumstances, such as aspect, shelter from prevailing winds, &c.

E. Villages of Agee, Nina, Choura, Rye, Deortola, Gorong, Sutura, Ghakora, Wallishone, and a few others, contain 600 persons, amongst whom four persons are affected. These villages are erected on primitive clay-slate. Mean altitude, about 4000 feet.

F. Villages of Bently, Jarig, Babra, Goumana, Biouly, Guinora, Kakur, and Barakote, situated in deep valleys, and on high ridges and declivities. They contain 500 inhabitants, six of whom have Goitre. They are erected on primitive slate, siliceous sandstone, and transition slate. Their altitude varies from about 2500 to 6500 feet.

G. Jeercoonee is the name of a mountain, which is given off from the Sooe group, about four miles N. W. of Lohooghat. It extends into the valley of the Ponar river on the west; is exceedingly rugged, and for the most part inaccessible. Deep ravines enclose it on three sides: in these are situated, on the north, three villages, which are named from the mountain; on the south are the villages of Junera, Dootee, Thur, and Mura: in all seven. They contain about 400 inhabitants, without a single case of Goitre. Nothing can be more frightful than the localities of these villages, from the lofty cliffs and mountains which seem to overhang them; while deep chasms lie at angles of 30° below. The altitude of these villages is from about 2200 to 3500 feet, and their mean temperature about 70° . They are erected on primitive slate and siliceous sandstone.

H. Rigong, Chintouly, Bursolly, and Popoulee. The two first are erected on low ridges of transition slate, surrounded by deep ravines and extensive forests; but the last is erected near the summit of a mountain of hornblende-slate. These villages contain 250 inhabitants, of whom none are affected with Goitre.

The following table exhibits the result of the details we have gone over in this section, in a way that will be convenient for comparison, with the result of similar inquiries in other portions of the province about to be detailed.

ABSTRACT OF SECTION II.

PURGUNAS OR DISTRICTS.	Number of high-caste Inhabitants.	Number of low-caste Inhabitants.	Total.	Rocks in which the Springs are situated.	Number of high-caste Inhabitants affected with Goitre.	Number of low-caste Inhabitants affected with Goitre.	Rocks composing the Sites of the Villages.
A. Rykote and Patan,	200	0	200	Clay-slate,	0	0	Clay-slate.
B. and C. Gome-dace,	850	100	950	Transition slate,	3	1	Transition slate.
D. Pansall, Chintouly, Conera, Leno, &c. .	700	100	800	Clay-slate,	3	0	Clay-slate.
E. Agee, Nina, &c.	550	50	600	Clay-slate,	4	0	Clay-slate.
F. Bentally, Jarig, &c.	460	40	500	Clay-slate,	4	2	Clay-slate.
G. { Jercoonee, north side,	200	0	200	Siliceous sandstone,	0	0	Siliceous sandstone.
{ Ditto, south side,	150	50	200	Clay-slate,	0	0	Clay-slate.
{ Popoulee,	50	4	54	Hornblende slate,	0	0	Hornblende slate.
{ Rigong and Bursally,	170	26	196	Transition slate,	0	0	Transition slate.
	3330	370	3700		14	3	

NOTE.—To the abstract might be added, a population of about four thousand, who inhabit the gneiss and granite district, and who reside a few months of the year in the plains. These persons are affected with Goitre, in the proportion of one in five hundred, which would make the whole population of the primitive mountains embraced by the map on the south of the Ramesa river, 7700 souls; of these, about twenty-five are affected with Goitre, or about one in three hundred and eight.

SECTION III.—*Statistics of Shore Valley.*—The general situation of the district of Shore, as well as its geological structure, has been described. I shall now proceed to notice the villages which are situated in it, specifying the number of inhabitants in each, and their circumstances in relation to Goitre; but from the great extent to which the disease here occurs, it will be necessary to attend to more minute particulars than were observed in the last section, in order that nothing may escape that might be calculated to aid the inquiry.

I. A village, called Beesty, is situated on the southern extremity of a low group of hills, in the centre of the valley of Shore. It is erected on clay-slate, and supplied with water from the same rock. It contains 60 inhabitants, all of whom are free from Goitre, except an elderly person, who came some years ago from another part of the neighbourhood, and the tumour has rather diminished than increased during a residence in this village.

II. Panda is half a mile north from the last described, and is erected on clay slate; but scattered blocks of limestone partly cover the surface of the slate, and a small bed of the limestone terminates in a knoll, on which the village is erected. It contains 25 inhabitants, and all are free from Goitre. It is supplied with water from clay-slate, and is elevated about 100 feet above the level of the valley. The inhabitants of this and the last village belong to the caste of Rajpoots.

III. Salmora, the name of a few huts, situated at the northern extremity of the valley, about a mile from the last described village. It is inhabited by two families of distinct castes, seven persons in each family, and four individuals of the caste of Doms, and two of the Rajpoots, have Goitre; in all, six out of fourteen individuals. This, like the former village, is elevated a little above the valley, and differs from it only in being erected on transition limestone, from which rock it is supplied with water. One of the Rajpoots is deaf and dumb, with a large head, and idiotic expression of countenance, which are all symptoms of Cretinism.

IV. Celouly, a small village, situated on the northern acclivity of the same knolls on which the two first hamlets are erected. It is elevated 300 feet above the valley. Its altitude and aspect render its temperature less than that of any of the former villages. It is erected on clay-slate, from which it is supplied with water. It contains 25 Rajpoot inhabitants, all of whom are free from Goitre.

V. Murh, a larger village than any of the foregoing; it is situated close to IV., but on the base of an opposite mountain, and contains 70 inhabitants, who belong equally to the castes of Rajpoots and Doms; two of the former and three of the latter are affected with Goitre. It is erected on the junction of clay-slate and limestone, and an extensive bed of granatine, composed of dolomite spar, calcspar, and steatite, advances close to the village. The basins of the springs are situated in this rock, but the waters are most likely derived from the substratum, as the granatine in question is seldom observed to afford springs.

VI. Goseragong—is situated a mile N. N. E. of Murh, and contains 18 inhabitants, 10 of whom are Rajpoots, and the rest are Doms: seven of the former, and five of the latter, have enormous Goitres. The inhabitants of this village assured me, that they seldom exceeded the age of 50, being generally cut off by this disease: and a person died of it only a few days before my first visit. The village is erected on a coarse conglomerate of calc tuff and rolled masses. Lofty precipices of alpine limestone ascend abruptly behind it to the height of two thousand feet; but the site is not more alpine than that of the seven villages at Jeercoonee. (G. Sec. II.) Goseragong is elevated about 200 feet above the level of Shore valley, and has an open aspect only on the S. E.; its temperature is consequently higher than that of the generality of villages in its vicinity, but in none of these respects is it more objectionable than either of the villages of Jeercoonee.

Water is supplied for the use of this village by a fountain, which issues from the limestone rock.

VII. Teebee. This village is situated three-quarters of a mile from VI., on an arm of the same mountain which extends into the valley. It contains 20 inhabitants, seven of whom have large Goitres. It is erected on clay-slate, coated with an incrustation of calcareous matter, and is elevated about 200 feet above the level of Shore valley, and is watered by a stream, which issues from the same source as that which supplies VI.; but in the present case, it is taken for use after running about a quarter of a mile in a natural channel.

VIII. Satgalinge is erected on an arm of a mountain which extends the same distance into the valley as the last. It has the same elevation, and is erected on the same rock, and the localities of both are close together, with a precisely similar aspect. It contains 40 inhabitants, and only two of them have Goitre. It is supplied with water from a spring in clay-slate. The inhabitants are Domes.

IX. Panère. The name by which three small groups of houses are distinguished in the north-western extremity of the valley, at an elevation of about 200 feet above it. Two of these groups contain 30 inhabitants, and four of these have Goitre. They use the water of a stream that descends a short way from its source, in the limestone cap of the mountain above them. The third portion of the group contains 24 persons, and is furnished with water from a spring in clay-slate. They belong to the Rajpoot caste, and are free from Goitre. The 30 persons first mentioned are Domes. Panère is built upon clay-slate.

X. Bajetee is erected on the southern acclivity of a low ridge which intersects the valley from east to west. It contains 20 Bramins, and 30 Domes: of the former, three, and of the latter thirteen are affected with Goitre. These people derive the waters which they use for culinary purposes from two distinct wells sunk near the bed of a stream which issues from the limestone cap of the adjoining mountain. The wells are so situated with regard to the stream, that they do not seem to be supplied by any independent spring, but rather from the

stream, particularly during the dry season. The rock surrounding the wells, as well as that on which the village is erected, is clay-slate, coated with calcareous matter, especially in all fissures, exposed surfaces, and rifts of the strata.

XI. Popdeon is situated half a mile west of X. and contains 80 inhabitants, 50 of the higher and 30 of the lower caste; of the former, eight, and of the latter, ten are affected. There are no distinctions in the physical relations of the inhabitants of the last village (X.) that the persons of this do not possess in common with them.

XII. Panorah is a village which is situated in the western extremity of Shore valley, about a mile west of the last. It contains 70 high caste inhabitants, and 20 Domes; of the former, one only is affected with Goitre, while six of the latter have large tumours. One of these swellings, which was the largest, I had an opportunity of seeing: measured two feet one inch round the neck, and one foot eleven inches from one angle of the under jaw, to the other on the opposite side.

The Bramin, or high caste inhabitants of this village, derive their water from a spring in clay-slate; and as the prejudice of the Hindoos denies to Domes the privilege of partaking of the water of the same spring, the excluded caste are forced in this, as in many other cases in Kemaon, to use this fluid from what they, as well as the Bramins, believe to be impure sources; and in this instance, it is taken from a stream that issues from the same limestone caps that afford waters to the two-last described villages. Panorah is built on clay slate, slightly coated with calcareous matter.

XIII. Paruree. This village is lower down in the valley than any of the foregoing, and is about a quarter of a mile south of the small knoll on which Bajeetee is erected.

It contains 60 inhabitants of the Bramin caste, and there is no case of Goitre among them. This village is erected on clay-slate, and surrounded by fine springs in the same rock.

XIV. Dungaunee contains 25 inhabitants. They are free from Goitre. This village is situated half a mile south of the military cantonments, on the southern side of the low ridge which intersects the valley from west to east. It is supplied with water from a spring in clay-slate.

XV. Bagalla is a village situated a little lower in the valley than the last. It contains 18 persons of the higher, and 22 of the lower caste: none of them have Goitre. It is surrounded by springs in clay-slate, and erected on the same rock.

XVI. Kumora is situated a quarter of a mile east of Dungaunee, and contains 70 inhabitants, of whom two are slightly affected with Goitre. This village is elevated 50 feet above the valley on a small knoll forming part of the low ridge that intersects the valley, and which has been before mentioned: the ridge rises behind this, and the following seven villages to the height of about 200 feet above them, at a distance of 300 yards in their rear. This and the following villages are erected on clay-slate, and plentifully supplied with water

from springs in that rock. The first three in the list are situated close to the limestone, which forms in tabular masses the rugged cap of the ridge.

XVII. (a) Jakane, 30 inhabitants, all free from Goitre.

XVIII. (b) Chouser, 50 inhabitants; no case of Goitre.

XIX. (c) Beera, 40 inhabitants; no case of Goitre.

XX. Boorikote, 100 inhabitants, no Goitre.

XXI. Kaseena, 15 inhabitants; no Goitre.

XXII. Kosooly, 25 inhabitants; no Goitre.

XXIII. Lailure, 100 inhabitants; no case of Goitre.

It is a remarkable fact in the history of this disease in Kemaon, that as far as we have yet proceeded, it will, on reference to the map, appear to extend in lines parallel to the direction of the strata. This important observation is strongly indicative of the influence of particular rocks on the remote cause of Goitre. The villages which are exempt from the morbid influence, are those which lie in a line along the base of the central ridge of the valley, beginning with Paruree (XIII.) and extending eastward to Lailure (XXIII.) and Murakote; on each side of these are the villages which are affected. They consist of two groups: one a mile distant, in the S. E. portion of the valley; and the other the same distance in an opposite direction; and both are disposed in lines parallel to the line of healthy villages we have just noticed, as well as to the direction of the strata.

The locality of the three following villages in the S. E. portion of the valley, bears a striking resemblance in external appearance and geological structure, to the site of those villages marked *a*, *b*, *c*, whose inhabitants may be said to be insulated from the limestone strata, inasmuch as they derive their supply of water from springs in another rock.

XXV. (d) Kutkora, 15 inhabitants, 5 Goitres.

XXVI. (e) Baldakote, 14 inhabitants, 7 Goitres.

XXVII. (f) Batuda, 16 inhabitants, 10 Goitres.

These three villages are those which compose the south-western line, and are erected on a conglomerate of calc-tuff, inclosing fragments of clay-slate and other rocks, and partly on clay-slate coated with calc-tuff. A clay-slate mountain supporting a massive cap of transition limestone, ascends to an altitude of 300 feet above them; pouring out numerous fountains, from which the immense beds of calc-tuff, on which the villages stand, have been derived. The waters are beautifully clear and limpid, and are taken for use as they jet from the rock. The peculiarity in the rocks from which their waters are derived, are the only relations in which the inhabitants of the villages *d*, *e*, *f*, differ from those of *a*, *b*, *c*: the altitude, aspect, temperature, religion, and morals of the inhabitants of both groups of villages being the same.

The villages on the north-eastern extremity of Shore valley, whose inhabitants are affected with the disease, are the following:

XXVIII. Deota. A lengthened village, which occupies half a mile of the foot of Durge mountain. One extremity of it is inhabited

by Bramins, the other by Rajpoots and Domes. Of the first caste, there are about 20 persons, all of whom are free from Goitre; of the second there are 40, and two-thirds are affected more or less; and of the third caste, nearly the whole are affected, 40 in number: so that, including the Bramins, there are only about forty persons in this village exempt from Goitre, out of a population of 100. To what cause can we ascribe the immunity of one caste of the inhabitants of this village, and the almost universal affection of the other two castes?—They are all alike well fed, and have little toil; their land producing the requisites of life almost without labour. Difference of caste does not here imply a difference in pecuniary circumstances, and consequently of the comforts of life. In these respects, the three castes in this village are on perfect equality; nor will hereditary predisposition, acquired by intermarriages between affected parties, be sufficient to explain the interesting fact: for the affected parties are confined to the caste of Rajpoots and Domes, who cannot intermarry; while the Bramins and Rajpoots may.

The village is raised about 100 feet above the level of the valley, and the mountain, at the foot of which it is situated, rises with a gentle slope, and is not in this vicinity at all rugged. It is chiefly composed of transition limestone; and the village is erected on a conglomerated rock, composed of calc-tuff, inclosing masses and fragments of other rocks. There is a spring situated in the valley, at the distance of about a hundred yards from the village, which from its first appearance has the character of a mineral spring. The water bursts forth with strong ebullition from numerous veins, in the quantity of at least forty gallons a minute, and communicates adhesive properties to the sand and gravel by which it is surrounded.* The temperature and quantity of the water is the same at all seasons.

The former inhabitants of this village, aware perhaps of the noxious effects of the spring, had an aqueduct formed, by which water is conveyed into the Bramin portion of the village, from a distant source. The aqueduct being allowed to go out of repair, the quantity of water it transmits is reserved exclusively for the Bramins; but during the rainy season, when water is plentiful, the Rajpoots also use the water of the aqueduct; but the Domes have no alternative at any season, but to use the water from the spring.

The circumstances of this village, with respect to Goitre, might of themselves be sufficient to confirm the doctrine of mineral waters; but so much difference of opinion has hitherto prevailed on the subject, that it is not likely such evidence alone will prove satisfactory, more especially as we are in the habit of overlooking occasional facts, as decisive as the above, though they have been brought to light by philosophers, whose names would have been sufficient security for their truth on any other question.

* This is merely the effect of calcareous tuffa, deposited in loose aluminous and sandy earth.

XXIX. Ninee. This village is also erected on the foot of Durge mountain, within a mile of the last described village. It contains 80 inhabitants, and there is not one case of Goitre among them. These people belong to the Rajpoot caste; their village is erected on clay-slate, which is partly detached from the base of the mountain by a small ravine, only a few yards wide. The mountain is here rugged and inaccessible; the village is supplied by a small but sufficient spring, in clay-slate.

XXX. Chonda. Also on the foot of Durge mountain, about two miles east of Deota. Chonda is built on a conglomerate of calc-tuff, inclosing fragments of slate and limestone. The inhabitants use the water of a stream which descends from the acclivity of the mountain depositing calc-tuff. For convenience, a few years ago, a portion of the stream was conducted in an artificial channel, through cultivated land, to the village—a circumstance, which there is some reason to believe, had modified the virulence of the water, for the tumours of those affected have not increased latterly, as they used to do; and children continue free from the complaint: of 25 inhabitants, seven are affected.

XXXI. Sunn. A little village, about a mile eastward of Chonda, on the opposite side of the ridge on which Lailure is erected. It is inhabited by a family of Bramins, ten in number, and five of them have Goitre. This village is also watered by a stream which descends from the mountain acclivity.

XXXII. Oliel and Cubulcola. Two small hamlets, situated three miles eastward of Sunn, in the direction of the strata. These two villages are situated in a most pleasing amphitheatre, completely sheltered from northerly and westerly winds, and partly also from those of the south; but exposed to the full power of the sun, until a few hours before he sets, when the valley is left in shade. There are 25 inhabitants in these villages, 13 of whom have Goitre, and 10 of them are Cretins: of these a whole family is deaf and dumb. Their deafness appears to depend more on a general insensibility to external impressions, than on any morbid or preternatural conformation of the ears. They seemed also to be deficient in sight, and quite insusceptible of the passions of joy and fear. The mountains around the locality of these villages are composed chiefly of limestone.

XXXIII. Bagultolly, lies in continuation of the same line, and two miles east of the last-described, and probably about 1500 feet below the level of Shore valley, in what may now be called the valley of the Mahi Kalee. Its aspect and locality are confined by mountains, which from this low situation seem, to be of great height.

It is erected on clay-slate, and partly watered by a spring in that rock, and partly by a stream from the mountain. It contains 25 inhabitants, four of whom have Goitre. The little arable ground around this village is in a high state of cultivation.

XXXIV. Bescolly. This village is on nearly the same level with the last described, but instead of being an inclosed valley, it is situated on an exposed though low ridge, composed of clay-slate, but covered

by the usual calcareous conglomerate, and watered by fountains that are poured from the mountain acclivities: these are composed of transition limestone, along with which serpentine here makes its appearance. Of 25 inhabitants in this village, 10 of them are affected with Goitre.

XXXV. Gooraght, situated two miles N. E. of the last-described. It is built partly on clay-slate, and partly on the conglomerate which now contains, in addition to the usual rocks, blocks of common serpentine. Water is procured from the mountain acclivity. Of 24 inhabitants 10 have Goitre, and a father and two sons are Cretins: the sons are both deaf and dumb.

The two villages which we have noticed last, are less interesting in a scientific point of view, as the inhabitants at certain seasons are compelled to retire to some neighbouring locality, in consequence of the rapacity of wild beasts. I have, however, added them to complete the account of the population in this direction. For a similar reason I may add the following villages, which are situated in the eastern extremity of Shore valley. They are permanently occupied, and are a continuation of the line of the villages that are exempt from the Goitre. The three first are erected on clay-slate.

XXXVI. Chupuckea, 40 inhabitants, no Goitre.

XXXVII. Suakote, 40 inhabitants, no Goitre.

XXXVIII. Murakote, 40 inhabitants, no Goitre.

Some blocks of overlying limestone are strewed about the neighbourhood of these villages, but clay-slate affords a plentiful supply of water for their use.

XXXIX. In the lowest part of the water-shed of Shore valley, where the different streams have collected their waters into a river, which escapes through deep chasms in the mountains, there is found a partial sandstone formation, on which the following two villages are erected.

(a) Kotilla, 50 inhabitants, no Goitre.

(b) Ruena, 50 inhabitants, no Goitre.

XL. Deorcolla and Dingas are situated lower down the valley of the small river just mentioned; they are erected partly on a magnesian limestone, and partly on clay-slate. They are surrounded by many of the highest mountains in Kemaon. The two villages contain 40 inhabitants, and none of them are affected with Goitre. The surrounding acclivities are overspread with overlying masses of limestone.

Paragraph in the Section under which the Vil- lages are de- scribed.	Bramins and Rajpoots.	Domes.	Total of both castles in each village.	Rocks from which the Water is derived for the Use of the In- habitants of each village.	Bramins and Rajpoots af- fected with Gottre.	Domes affected with Gottre.	Total of both Castles in each village affected with Gottre.	Rocks on which the villages are erected.
I.	60	...	66	Clay-slate.	...	...	...	Clay-slate.
II.	25	...	14	Transition limestone.	...	4	...	Clay-slate.
III.	7	7	25	Clay-slate.	2	...	6	Transition limestone.
IV.	25	...	70	Granatine.	2	...	...	Clay-slate.
V.	40	30	18	Transition limestone.	7	3	5	Granatine and clay-slate.
VI.	10	8	20	Transition limestone.	...	5	12	Conglomerate of calc-tuff, slate, and limestone.
VII.	...	20	40	Clay-slate.	...	7	7	Clay-slate, coated with calc-tuff.
VIII.	...	40	54	Limestone and slate.	...	2	2	Clay-slate.
IX.	48	6	50	Limestone?	3	1	4	Clay-slate.
X.	20	30	80	Limestone and slate.	3	13	16	Clay-slate, incrustated with calc-tuff.
XI.	50	30	90	Limestone and slate.	8	10	18	Clay-slate, incrustated with calc-tuff.
XII.	70	20	60	Clay-slate.	1	6	7	Clay-slate.
XIII.	60	...	25	Clay-slate.	...	...	...	Clay-slate.
XIV.	25	...	40	Clay-slate.	...	...	...	Clay-slate.
XV.	18	22	70	Clay-slate.	2	...	2	Clay-slate.
XVI.	70	...	30	Clay-slate.	...	...	...	Clay-slate.
XVII.	30	...	50	Clay-slate.	...	...	...	Clay-slate.
XVIII.	40	10	100	Clay-slate.	...	...	...	Clay-slate.
XIX.	...	40	100	Clay-slate.	...	...	...	Clay-slate.
XX.	100	...	15	Clay-slate.	...	...	...	Clay-slate.
XXI.	15	...	25	Clay-slate.	...	...	...	Clay-slate.
XXII.	25	...	100	Clay-slate.	...	...	...	Clay-slate.
XXIII.	100	...	15	Transition limestone.	5	...	5	Clay-slate, coated with calc-tuff.
XXIV.	15	...	14	Limestone.	...	7	7	Clay-slate, coated with calc-tuff.
XXV.	...	14	16	Transition limestone.	...	10	10	Conglomerate of calc-tuff, slate, and limestone.
XXVI.	...	16	100	Limestone?	27	33	60	Conglomerate of calc-tuff and fragments of slate.
XXVII.	60	40	80	Clay-slate.	...	...	...	Clay-slate.
XXVIII.	80	...	25	Limestone.	7	...	7	Conglomerate of calc-tuff and fragments of slate, &c.
XXIX.	25	...	25	Limestone.	5	...	5	Clay-slate?
XXX.	10	...	25	Limestone.	4	9	13	Clay-slate and calc-tuff.
XXXI.	10	15	25	Limestone?	...	...	4	Clay-slate and calc-tuff.
XXXII.	25	...	25	Limestone?	10	...	10	Conglomerate of calc-tuff, slate, and serpentine.
XXXIII.	25	...	21	Limestone?	10	...	10	Clay-slate and scattered blocks of limestone.
XXXIV.	25	...	40	Clay slate.	...	...	...	Clay-slate.
XXXV.	40	...	40	Clay-slate.	...	...	...	Partial sand-stone formation.
XXXVI.	40	...	100	Clay-slate.	...	...	...	Clay-slate and magnesian lime-stone.
XXXVII.	40	...	40	Clay-slate.	...	...	...
XXXVIII.	100	...	40	Clay-slate.	...	...	...
XXXIX.	40	...	40	Clay-slate.	...	...	...
XL.	...	...	...	Clay-slate.	...	...	...
	1372	348	1720		100	110	210	

SECTION IV.—*Statistics of various Valleys and Districts.*—

After a few more statistic notices of the district which surrounds Shore valley, we may then proceed to the analysis of the whole of the details, and render them into a more interesting shape than we have yet been able to do. As far as the nature of the subject may admit of it, the remaining details shall be shortened, by generalizing the villages with the valleys in which they are situated.

XLI. The great valley of the Ramgungah river is situated eight miles west of Shore. It is here about 1800 feet above the level of sea; and the lowest villages are about 400 feet above the bed of the river. The mountain acclivities on each side ascend at angles of about 20° to the height of three or four thousand feet. They are composed almost entirely of limestone, of the transition and floetz periods; these rocks rest on primitive slate, which occasionally crops from under them. The direction of the valley is from north to south, and of the strata from S. E. to N. W.; the limestone formations consequently cross the valley obliquely. There are in this valley eight villages, viz.—Bursar, Kuttygong, Tulsar, Sangur, Domera, Chumaloo, and two others. These villages are interspersed through the valley, at different altitudes, and are all erected on limestone. They contain 100 inhabitants, chiefly of the Rajpoot caste, and 60 of them are affected with Goitre. The following are the limestone rocks found to compose this part of the valley.

(a) Extensive beds of the transition rock.

(b) Compact limestone, which abounds in such quantity as to form the peculiar Alpine character of this portion of the valley.

(c) Extensive deposits of calcareous tuffa inclosing rolled masses of other rocks.

XLII. The valley of Kalapany. This valley adjoins the northern extremity of Shore, and extends six or eight miles to the westward, where it falls into the valley of the Ramgungah (XLI.) It is probably one of the lowest inhabited places in Kemaon, and is closely surrounded by mountains, some of which ascend six thousand feet above the river, at angles subtending from 20° to 30° . It contains few villages, and the presence or absence of Goitre is here marked by the same concomitant circumstances that have been observed in Shore valley. The following are the two most considerable villages, and are most remarkable in the contrast they present to each other with respect to Goitre.

A. Beechelly. Situated in the lowest part of the valley. It contains 70 inhabitants, 30 of whom have Goitres. This village is closely surrounded by mountains of transition limestone, and is erected on an alluvial deposit, which is formed of the debris of other rocks, and cemented loosely with calcareous matter: 50 of these persons are Rajpoots, the remainder are Domes.

B. Reunna. Situated a mile to the eastward of Beechelly; contains 50 inhabitants, only one of whom has Goitre.

This village is as much inclosed by surrounding mountains as the last, and is only about 50 feet higher.

It is erected on the side of a knoll of transition slate, and having no spring, the inhabitants use the water of the river, which comes from the valley of Barabice. The inhabitants of this village are Rajpoots.

XLIII. Valley of Barabice is situated twelve miles north from the valley of Shore, and is elevated about 4000 feet above the sea. It is somewhat of an oval shape, extending about four miles from east to west, and two miles from north to south. The eastern extremity of the valley is composed of clay-slate containing beds of talc. There are five villages in this end of the valley, which contain a population of 152; and I could not perceive, or learn upon inquiry amongst them, that there was a single case of Goitre in these villages.

The western extremity of the valley is bounded by a low ridge, which is formed of a coarse kind of satin spar (fibrous limestone,) and first floetz limestone: these rocks rest on clay-slate, and six villages, which contain 192 inhabitants, are erected on them; and out of this number, 70 are affected with Goitre: but it must not be supposed, that these 70 persons belong equally to the six villages. The following two instances will illustrate the diversity that prevails in this respect.

(a) Ager. This village contains 50 inhabitants, 40 of whom have large Goitres, and twenty of them are Cretins. They use the water which issues from the drift of an old copper mine, which is situated in first floetz limestone. The people were earnestly solicited to discontinue the use of this water in future; and I pointed out a spring at some distance that they might substitute for it, in the full confidence of being benefited by the change.

(b) Ducygong, situated within half a mile of Ager (a,) on the same rock, and contains the same number of inhabitants, and not one of them affected by the disease. They use the water of a spring in clay-slate, and belong to the Bramin and Rajpoot castes.

XLIV. The valley of Deodara is situated on the southern side of Shore valley, from which it is only divided by a detached mountain of clay-slate, with a slight deposit of tabular limestone on its summit. The opposite side of the valley is bounded by Takill, a very lofty mountain.

This valley contains two large villages and several smaller ones. It is well watered by numerous springs in clay-slate. It contains 250 inhabitants, of whom four persons only are affected with Goitre, and these are confined to a small village, which contains 20 inhabitants, and which is erected immediately beneath the limestone cap of the mountain which divides the valley from Shore.

XLV. The valley of Goron is situated on the western side of Shore valley, from which it is separated by a considerable ridge. It contains seven villages, and 179 inhabitants, 16 of whom have Goitre, and nine of these affected persons belong to a small village of 24 inhabitants, called Majara: the inhabitants of this village derive their water from a stream which rises in the limestone of the Oudepore mountains on the south side of the valley.

This valley is composed of a variety of rocks ; but the villages are generally erected on clay-slate, which abounds in springs of pure water.

A village in this valley called Chana, is erected on the same granatine as that which occurs at Murh (V.) : it contains 30 inhabitants, two of whom are affected with Goitre.

XLVI. The valley of Roilputty extends along the S. W. foot of Takill, and is about seven miles distant from the valley of Shore. It is extremely wild and Alpine, and contains only two villages, 25 persons in each.

1st. Tomilly is erected on transition slate, which contains no water : this fluid is consequently procured from a stream which falls in a small but picturesque cascade over the rocky precipices of limestone that here form the declivity of Takill. Six cases of Goitre are found in this village, and a third of the whole of the inhabitants approach nearly to the condition of Cretins.

2nd. Kurkolly, the second village, is erected on the same rock with the first, but at a lower and more distant portion of the valley. It is furnished with water from the same rivulet, after it has run about a mile and a half along the valley. In this village there is but one Goitre.

XLVII. The valley of Beechar is connected with the south-western extremity of Shore valley, and is only divided from it by a low narrow ridge. The water-shed of the valley descends from the north-west, and is composed of clay-slate : on this is situated a village containing 40 inhabitants ; and all are free from Goitre. On the lower side of the valley, and near the base of a lofty mountain, are two villages erected on a knoll of argillaceous slate, whose surface is coated with a slight calcareous incrustation. One is occupied by Bramins, the other by Domes ; about 20 of each sect. Five of the Bramins and ten of the Domes are affected with Goitre. Some of the tumours are extremely large, even in persons of the age of ten years. Water is here afforded by two springs, situated close together. They resemble the spring at Deota (XXVIII.) in almost every particular. The waters boil up in such quantity as at once to occasion a considerable stream. They were surrounded by so much sand and gravel, that I was unable to ascertain the rock from which they emerge ; but limestone is found within a short distance of the springs on the one side, and clay-slate on the other, so that the geognostic position of the veins from which the waters issue, may be presumed to be situated between these two rocks.

ABSTRACT OF SECTION IV.

Names of the Valleys.	Bramins and Rajpoots.		Domes.	Total of both Castles in each Village.	Rocks from which the Water is derived for the Use of the Inhabitants of each Village.		Bramins and Rajpoots affected with Goitre.	Domes affected with Goitre.	Rock on which each Village is erected.
	Bramins	Rajpoots.							
XXI. Valley of the Rangungah river,	100	0	0	100	Limestone,	..	60	0	Limestone.
XXII. { Valley of } — { A.	50	20	20	70	Limestone,	..	20	10	Conglomerate of calc-tuff, &c.
XXIII. { Kalapany, } — { B.	50	0	0	50	River,	..	1	0	Transition-slate.
XXIII. { Valley of } — { Eastern extremity,	120	32	32	152	Clay-slate,	..	0	0	Clay-slate.
XXIII. { Barabice, } — { Western extremity,	110	82	82	192	Limestone,	..	30	40	Limestone.
XXIV. Valley of Deodara, .. {	145	80	80	225	Clay-slate,	..	0	0	Clay-slate.
XXIV. Valley of Deodara, .. {	25	0	0	25	Limestone,	..	4	0	Clay-slate.
XXV. Valley of Goron, .. {	0	24	24	24	Limestone,	..	0	9	Limestone.
XXV. Valley of Goron, .. {	90	35	35	125	Clay-slate,	..	5	0	Clay-slate.
XXVI. Valley of Roilputty, .. {	30	0	0	30	Granatine,	..	2	0	Granatine.
XXVI. Valley of Roilputty, .. {	25	25	25	50	Limestone,	..	1	6	Clay-slate.
XXVII. Valley of Beechar, .. {	40	0	0	40	Clay-slate,	..	0	0	Clay-slate.
XXVII. Valley of Beechar, .. {	20	20	20	40	Limestone,	..	5	10	Clay-slate, incrustated with calc-tuff.
	805	318	318	1123			128	75	

RESULTS ATTAINED FROM THE FOREGOING SECTIONS.

TABLE V.

ABSTRACT VIEW OF THE INQUIRY GONE OVER.

Names of Rocks.	Number of Villages	Number of Inhabitants.	Number of Persons affected with Goitre.	Number of Cretins.	Mean Altitude.	Mean Temperature by Fahr.	General Remarks.
1 Granite and gneiss—see note at the end of Section II. ..	0	0	0	0	6500	68°	Doubtful, in consequence of the temporary residence of this portion of the population in the plains; but the proportion of Goitre is about 1 to 500.
2 Hornblende slate and mica slate, ..	1	50	0	0	6000	78°	
3 Clay-slate, ..	71	3957	29	0	4100		
4 Steatitic sandstone, ..	3	200	0	0	3500		
5 Granatine, ..	2	100	7	0	4000		
6 Partial sandstone, ..	1	40	0	0		78°	
7 Transition floetz and alluvial limestones,	35	1160	390	34	4000		
	126	6543	430	34			

OBSERVATION.—XLVIII. From the above abstract it appears, that the proportion of the inhabitants of each rock, who are affected with Goitre and Cretinism, will stand to the healthy in the following order:

Granite and gneiss—Goitre, $\frac{1}{500}$; Cretins, none.

Mica-slate and hornblende-slate—Goitre, none; Cretins, none.

Clay-slate—Goitre, $\frac{1}{130}$; Cretins, none.

Transition-slate—Goitre, $\frac{1}{240}$; Cretins, none.

Steatitic sandstone—Goitre, none; Cretins, none.

Calcareous-rocks—Goitre, $\frac{1}{3}$; Cretins, $\frac{1}{2}$.

Are we to suppose that these interesting results are the effects of chance, or of an accidental association of circumstances confined to a particular spot? When we recollect that a space of upwards of a thousand square miles has been made subject to the inquiry, and that in every portion of this space, the same invariable circumstances attended the presence of the disease, and that its absence was invariably distinguished by the absence of those circumstances, it is more philosophic to view them in the light of cause and effect.

SECTION V.—*Description of Goitre as it occurs in Kemaon, with an Attempt to account for the foregoing Results.*—XLIX. It is not because the subjects of this disease are in general peculiar to remote districts, that they are the less to profit by the zeal and sympathy of their more fortunate fellow creatures. There is a mistaken notion expressed by some authors, who, speaking of the comparative

innocence of the disease, set forth its unsightly appearance as its worst effects; and thus they deprive the inquiry of that interest which is felt in prosecuting researches into the nature of other disorders. Those who express themselves so, cannot have had sufficient opportunities of witnessing the misery entailed on the inhabitants of tracts of country in which the Goitre prevails to the extent it does in Kemaon. There is no other disease for which the people have greater dread, or from which they are more anxious to be relieved. It is true, the victim is not suddenly cut off; the ultimate effects of the disorder are, however, scarcely less fatal than those of any other complaint to which we are subject; nor is the patient entitled to less commiseration because his sufferings are protracted.

The next object is to inquire whether the Goitre in Kemaon be a peculiar disease; and this point will be best determined by a brief description of the nature and treatment of the complaint.

The tumour does not always originate in the thyroid gland; but in a third of the cases I have seen, it appeared to commence with a fulness of the base of the neck, on one or both sides over the middle of the clavicle: from thence the swellings ascend, and in a longer or shorter time, reach the situation of the thyroid gland, when both tumours unite.

In its progress up the neck, the tumour sometimes appears to become entangled, as it were, in the folds of the *fascia cervicalis*; it then becomes indurated and forced between the trachea and œsophagus, where it displaces these organs, and often proves fatal by interrupting their functions before it increases to any considerable size; and without even extending to the thyroid gland, being apparently confined to the lymphatics, which accompany the great vessels of the neck.

In its more common form, the thyroid gland is first affected, and the tumour increases to a great size, without causing much inconvenience, especially if it be loose and pendulous; but in many cases of this form of the disease, the tumour is probably compressed by the same cause as was observed with respect to the first variety, and dyspnœa becomes the most prominent symptom; the lips become darker than natural, the eyes blood-shot and protuberant, and the patient dies from protracted strangulation.

The disease begins at any period of life after the age of three years, and never, as far as I have seen, arrives at its full size sooner than six years from the time of its commencement, but is generally much slower: its progressive augmentation seldom, however, becoming perfectly suspended during a residence in an affected village.

This description must be received as in some measure empirical, the prejudices of the Hindoos of Kemaon being such as not to suffer the dissection of their dead.

The usual size of a full-grown Goitre is about one foot ten inches in circumference, including the neck; and about two feet from one angle of the lower jaw to the other of the opposite side, (measuring under the tumour.)

Incipient tumours of only a few months' or a year's duration are easily dispersed by stimulating linaments, and a few alterative doses of calomel; but without the change of the accustomed water, these means will only afford temporary relief.

L. From the above description, there can be no reason to doubt the identity of this disorder with the strumous endemic of Switzerland; and wherever it is found, from Abyssinia and the Chinese Wall, to Sumatra and Derbyshire, it appears to present the same characters, and is less under the influence of climate than perhaps any other complaint. Does not this fact establish the importance of the singular results of these statistic inquiries, by opening a new field to our researches into the nature of endemic contagion?

The next point is to inquire into the manner in which the results in question are affected, by what is generally known respecting the physical structure of those countries in which the disease is endemial.

LI. From the writings of geologists, we learn that Alpine limestone does not occur to any great extent in the mountains of Ireland, nor in those of Scotland and Wales; and in these countries, Goitre is unknown. In England, the disease is known by the name of the Derbyshire neck, and is principally confined to Derbyshire, where the particular rock in question forms the characteristic features of the country.*

In the Alps of Switzerland and Tyrol, where Goitre and Cretinism both prevail, we have the authority of geologists, that Alpine limestone and *nagelflugh* compose the greatest portion of the mountains. Humboldt mentions (Pers. Narr.) that *nagelflugh* covers the greatest part of Switzerland to the height of a thousand toises. Now this *nagelflugh*† is the same rock (or nearly so) as that on which the villages of Goseragong (VI.), Batuda (XXVII.), Deota (XXVIII.), and Chonda (XXX.), are erected villages, whose inhabitants are affected with Goitre to the extent of half their population. This rock is composed in Kemaon of a basis of calc-tuff, inclosing fragments of other

* In Cumberland and Wales, there are more lofty mountains than in any other part of England, Scorfell and Snowden being nearly 3300 feet above the sea; while Axe-edge, the highest peak in Derbyshire, taken by Colonel Mudge, is only 1751 feet: so that Goitre in that country cannot be owing to the height and magnitude of its mountains, but the cause must be sought in their structure; accordingly, we find the mountains of Derbyshire are composed of Alpine limestone, while those of Cumberland and Wales consist, for the most part, of granite, clay-slate, porphyry, and sienite.

At Fribourg, Valteline, Berne, Pay-de-Vaux, Dresden, Savoy, and Piedmont, the most remarkable districts in Europe for the prevalence of Goitre, Alpine limestone constitutes the principal rock formation.

† "*Nagelflugh*," says Professor Jameson, (Syst. Min. 1808,) "is usually composed of fragments of limestone, more or less rounded, and of various magnitudes, cemented together by a basis of calc-sinter. It occurs always at a greater or less distance from limestone mountains, and sometimes forms considerable tracts of country." It appears abundantly at the foot of the great hills of Alpine limestone that bound Bavaria to the south, and in many other places in the great limestone range that passes through Tyrol, Styria, &c.

rocks, from the size of a grain of sand to that of a mill-stone. These fragments are either rounded or angular, and the basis in which they are imbedded is either solid or vesicular. The matrix of the rock is a chemical deposit derived from water, and the inclosed masses which it contains appear, at first view, to indicate some catastrophe by which they were broken and precipitated to their present situation. By attending more deliberately to the changes that are going on in nature, the formation of nagelfluh appears to be extended down to our own time, as an alluvial deposit, occasioned by the constant crumbling of rocks, and rolling down of masses and fragments separated by the chemical and mechanical agencies of the atmosphere, and again consolidated by the deposit of calc-tuff from the waters of Alpine limestone.

The different appearances which a rock of this nature must necessarily assume, has procured for nagelfluh a greater variety of designations than any other formation; calcareous sandstone, breccia, conglomerate, and pudding-stone, are names that have no doubt been applied to different varieties of it by English writers. It is best distinguished by being always subordinate to Alpine limestone, and it is on this latter account only, that its connexion with Goitre appears to be important.

LII. Alpine, or compact limestone,* does not admit water by percolation, through its solid substance by means of porous or absorbent qualities; but by open rents and fissures, which communicate with subterraneous caverns in the centre of mountains, where it may either remain for ages, or flow out by counter fissures.†

* It is the *erster floetz-kalkstein*, or first floetz-limestone of Werner; the lowest stratum of it is the bituminous-marl-slate, or the copper-slate of the miners.

† Speaking of Alpine limestone, Humboldt says, (Pers. Narr.) "It is the rock that so often interrupts the course of rivers, by engulfing them in its bosom."

"The whole of that enormous mass of limestone at Craven (in Derbyshire), from Ingleborough to Whernside and Gordal, is intersected by perpendicular fissures, which are narrow at the top, and become wider as they descend, through which the water may be heard at a vast depth below *****. Castleton and Poolshole, near Buxton, and Yardas Cave, under Whernside, in Craven, Gerdal, Scar, and Weathercock, in the same district, can scarcely be called caverns, as they are open to the day; but the latter was formerly a cavern, of which the roof has fallen in." "In all these caverns, and others which I observed," (says Mr. Bakewell, *Introductio*, to *Geolog. Lond.* 1815,) "there is a stream of running water; and I am inclined to think, that the caverns have been formed by the agency of water, percolating through fissures; and in the lapse of ages, excavating the softer or more broken part of the rock."

"The mines seem to be, or to have been, open channels, through which the waters pass within the earth, and like rivers, have their small branches opening into them in all directions, which are by miners called feeders of the load. Most mines have streams of water running through them; and when they are found dry, it seems to be owing to the waters having changed their course. **** Sometimes the mine is lined with an intermediate substance between the load and itself: this is the wall of the load. *** The springs in these parts are always hard, as abounding very much either in stony, or sulphuro-saline particles."—*Dr. Nicholl's Observ. Nat. Hist. of Mines*, 1728.

Water thus circulating through confined caverns, without having undergone previous percolation, is likely to assume changes dependent on the various vegetable and animal impregnations with which it may be loaded: these engender new agencies, which operate on the numerous mineral substances with which the water comes in contact. In the confinement of narrow caves and fissures of limestone, the surface of this subtile fluid becomes so much extended, that every portion of the surrounding superficies is exposed to its action. No other rocks contain such extensive repositories of extraneous fossil and metallic substances, and no other formation of rocks contains such extensive caverns and fissures, where these foreign substances are exposed to the slow action of this menstruum. Hence the greater number of mineral springs that abound in calcareous, than in any other rocks.*

LIII. Having endeavoured to explain the influence that Alpine limestone is capable of exercising on the waters of a district, it remains to offer a few observations on the effect which calcareous rocks may, under peculiar circumstances, exercise on the condition of the air in their vicinity.

The peculiarity of air in mountains has been often brought forward as the exciting cause of Goitre, although no attempt has ever been made to explain in what the peculiarity alluded to consists, or why it should exist, farther than that it is supposed to be excited by

I might quote farther observations of Dr. Nicholl, one of the most eminent physicians of his time, illustrative of the changes to which water is exposed in the bosom of the earth; but his papers may be consulted in the *Phil. Transac.*

"The three rivers, as they are commonly called, in Peakshole are only some parts of the cave deeper than the rest, and receiving all their waters from the spring, which come from the farther end of the cave. The waters which pass through Poolshole are impregnated with particles of limestone, and so have incrustated the whole cave in such a manner, that it appears like one solid rock."—*Nat. Hist. Derbyshire, by J. Martyn, 1729.*

See also the eloquent description of the caves near Bayreuth, by his Most Serene Highness the Margrave of Anspach.—(*Phil. Trans. 1794.*) Also, "Observations on the Nature of Intermitting and Reciprocating Springs, by J. Atwell, F.R.S."—(*Phil. Trans. 1732.*) "These mountain caverns will account for the statement of Pliny," (*lib. xxxi. 4.*) "that earthquakes pour out and drink up waters."—See account of the great earthquake at Naples, 1731.—*Phil. Trans. 1733 and 1735, by Dr. Cyrillus.*

Mathias Belius describes two caverns in Hungary.—(*Phil. Trans. 1739.*) "The one emits noxious vapours, and is overflowing with water, which deposits a tophas. **** When subterraneous waters flowed from the interior of the fountain in the hidden passages, the ground began to give way, and at length formed a new opening, when it began again to emit noxious vapours, destructive to birds and other animals.

"In the cavern is heard the murmuring noise of running waters, so that a river probably flows through the interior passages, and at last loses itself in some kind of shallow."

* Such as the mineral springs of Buxton, Matlock Malvern, in Derbyshire—Bath, Bristol, and the springs of Imaw in Suabia, Carlsbad in Bohemia, and the salt springs at Koningshorn, (Klap.) and those of Seltzer, Sydchut, Spa, Pyrmont, and the baths of Carolin in Bohemia, (Berg.;) and probably other celebrated mineral waters, whose physical topography I am unable to refer to at present.

a warm atmosphere, in situations where the free circulation of air is impeded; but now that we have traced the disease to a peculiar constitution of strata, our notions on this intricate point may soon become more precise: and it deserves to be inquired into, whether or not, the exhalations from limestone rocks contain a larger portion of carbonic acid gas, than is found to exist in the general atmosphere.

Peculiarities in the physical and chemical constitution of mountain rocks have been hitherto quite overlooked as a source of endemic contagion, which may in some degree perhaps account for the little success that has attended the researches of philosophers upon the subject; for although it has been known in all ages, that there is a difference in the air in different places, by its effects on the human constitution; yet all that has ever been demonstrated by the eminent men that have entered upon the inquiry, was the imperfection of our most refined chemical tests; that in fact some farther improvements must be made in chemical science, before the nature of contagion can be demonstrated.

Humboldt found the proportion of carbonic acid gas, in the atmosphere, to vary from 0.01 to 0.005. of the bulk of the air; but he does not appear to connect this important variation with local peculiarities of geological structure.

It is well known, that air containing 0.1 of its proportion of this gas extinguishes light, and is speedily destructive of animal life; and as this volatile poison exists in limestone, to the extent of 44 parts in 100 of the solid rock, it is possible to conceive that a sufficient quantity of it, to cause a more or less vitiated condition of the air, may be extricated from limestone by atmospheric heat, assisted by such other causes as promote the decomposition of the rock.

This gas floats on the surface of the earth in places from which it is extricated; it is evolved by mineral springs, and by all waters, which contain it; and it is separated from limestone, the great repository in which it abounds in nature, by *heat*; and the important questions that remain to be decided are, whether the heat of the atmosphere is sufficient to separate it in any noxious quantity; and whether if, by means of pyrites, assisted by moisture and atmospheric heat, an insensible evolution of carbonic acid gas is not constantly taking place in certain localities? These, next to the examination of the waters, are points which are entitled to careful attention.

A reference to the mineral topography of all the villages in Ke-maon which I have examined, but one, seems to favour, rather than negative, these views; and even with regard to the village of Ager (XLIII.), the occupation of the inhabitants as miners, to which they have been brought up from childhood, may expose them sufficiently to impure air, to occasion much of their bodily infirmities, independent of any noxious evolution of gas, in the way we were supposing it possible to occur.

If there be difficulties in the way of conceiving the possibility of the emission of carbonic acid gas from limestone, its absorption by lime-water may be suggested, as a means by which it may be attracted

by the moisture on the surface, and at the base of calcareous mountains.

The thin incrustation of calcareous matter, so often observed on the surface of clay-slate, composing the site of many of the affected villages in Shore valley, and its vicinity, may have been formed by particles of lime having been partially reduced by heat and drought on the adjoining acclivities, and carried by the winds to the knolls of slate, whose moist and absorbent surfaces arrested their drift, and converted them into a cement, by the attraction of carbonic acid from the general air. Until we are better informed, we should certainly not be too ready to despise the effect which such operations may have in animate, as in inanimate, nature; and attention to them might assist in explaining the cause of this disease in certain low tracts extending along the base of the Alps, as well as the Himalayas.

SECTION VI.—*General Observations on the Examination of Waters.*—LIV. In the examination of the waters of a province, or extensive district, it may be necessary to keep in view the geological distinctions by which the several portions of it are characterized, as any peculiarities in the qualities of waters, when derived from springs in the earth, must depend on the nature of the mineral substances which compose their localities. The importance of this observation has always been known, and generally attended to; but it may have derived additional consequence from what has transpired in the preceding sections.

Water constitutes the medium by which living bodies are supplied with new materials. Plants will not vegetate without it, and most of those earthy, alkaline, and metallic substances, which are common to spring-waters in general, have been discovered to constitute a portion of vegetable bodies. There is scarcely reason to suppose, that these substances are formed in vegetables by any property of the living principle; we must therefore believe them to be imbibed from the soil through the medium of water and food, and consequently to differ in some degree with the mineral constitution of the places in which vegetables grow.

The same observations apply to animals; but as they are endowed with locomotive functions, they may be supposed to contain a greater variety of extraneous substances: still, however, differing according to the rocks and soils they inhabit. The presence of lime, sulphur, magnesia, silica, iron, and manganese, in animal bodies, has been long known; although their production is supposed to be incompatible with the functions of living organs. We are thus led to believe, that these extraneous substances may differ in their proportions in living bodies, according to the peculiarities of geological structure in particular places; as, however, a certain proportion of these foreign matters is essential to the healthy state of animals, so any deviation in this respect may be the cause of endemial disease, as Struma, Plica, Polonica, and Scorbutus.

Although waters, containing impregnations to a degree that causes powerful medicinal effects on the human constitution, are found in al-

most every country, it is not a little surprising that the several degrees of impurity between the medicinal and the pure water should be so much overlooked. The difficulty of pointing out the various impurities, and the unusual circumstance of any being perfectly pure, is no doubt the cause of the general indifference of physicians to the quality of water.

It is remarked, (1 Berg. 112,) that the complete analysis of water is one of the most difficult operations in chemistry. The difficulties, or rather the imperfections, are occasioned by the minuteness of some substances, and the evanescence of others, with which water may be impregnated. Bergman found the active principle of the Lokarne water escape in four hours through a glass vessel, though corked and sealed in the most careful manner, in a northern climate. Those who deny the influence of particular waters in causing the Goitre, merely because they cannot demonstrate the noxious principle, and its *modus operandi*, should recollect, that although snow was found by the illustrious chemist above mentioned to form the purest natural water, yet he would not venture to deny the effects on animals ascribed to it, merely from the deficiency of common air in the water of newly-melted snow: and although the noxious effects of this water have been found to be imaginary, it serves to shew the importance attached to certain conditions of water, which differ but slightly from a wholesome standard; and should guard us against rash conclusions, on a question of so much difficulty.

The ancients observed the diminutive size and sickly appearance of plants growing on mountains which contained metals: and although this notion has been lately condemned as fanciful, by an eminent authority, I have observed some of the most remarkable metalliferous mountains in Kemaon without a shrub; yet they are surrounded by others of a more earthy structure, which are clothed with dense forests to their summits.

I have been led to make these remarks from some facts, which tend to point out, that the noxious principle in the waters of Alpine limestone is a subtle combination, derived perhaps from those strata of the rock which are called by miners copper-slate, so distinguished from the quantity of metals which they contain, particularly the ores of copper; and in describing the physical locality of the springs which supply those villages, whose inhabitants suffer most from Goitre, they may be said to be generally derived from the strata in question. In the first floetz limestone in Kemaon, the metals are not accumulated in large masses, in particular repositories, such as veins; but they are disseminated in nodules, leaves, and small particles throughout the strata seams and interstices of the rock. Thus I have found copper pyrites in the vicinity of Petoragur and Gosera-gong, and at the village of Ager, ten miles distant from the former places; and the whole intervening space (including the sites of most of the affected villages) may be considered as one great repository, in which the metal is disseminated in the manner just described; so that every circumstance appears calculated to produce a vitiated state of the waters, which here, at least, it might be supposed, would be easily detected. Such

I am sorry to say, is not the case, although I have seen enough to justify the views which are here expressed.

Mr. Saunders, in the account of his journey to Boutan, (Phil. Trans. 1784,) alludes to the frequency of Goitre in Sumatra, which allusion destroyed the theory which referred the disease to the use of snow-water. Now, although snow never falls in Sumatra, it is a fact that goes singularly to the support of the above observations, and one, no doubt, that will be soon converted into some new hypothesis, that copper ore is most abundantly disseminated in that island.

"The ore of copper," says Mr. Macdonald, (Asiat. Res. 417,) "is found on, and under the soil of soft rock;" again, "the space affording the ore is considerable, extending over a degree in length, and farther east, or into the country," (Sumatra,) "than has yet been discovered."

With respect to the remark of Werner, in his celebrated Essay on Veins, that "the water which flows from metallic veins ought to carry along with it a quantity of metallic particles, which, however, it does not; and even in those countries, which contain the greatest number of mines, the water rarely contains a small portion of iron; scarcely ever any particles of copper; never silver, lead, tin, zinc, cobalt, mercury, or arsenic:"—without entering into any speculative argument against this apparent paradox, it is sufficient to mention, that metals in their mineral state are insensible to the most powerful chemical tests. Thus copper pyrites and iron glance, as well as iron pyrites, were reduced to the finest powder, and mechanically suspended in distilled water, to which prussiate of potash was added, without affording the slightest indication of their presence. The same was repeated with tincture of galls, with the same result.

It is mentioned by Klaproth, that even iron, a metal for which we have such excellent tests, is capable (when in small quantity, as in Carlsbad waters) of "eluding the senses, as well as the efficacy of reagents, unless examined at the spring." Hence it is, from the small quantity in which they occur, and the imperfection of analysis, that certain metals have not been found in waters, rather than from any incompatibility that can be supposed to exist with regard to such mixtures. By adopting this natural conclusion, we give additional scope to our researches into the cause of endemic contagion, without pledging ourselves to particular hypothesis; for although, in the present state of our knowledge, we may suspect the noxious effects of metallic salts and particles of pyrites in the waters of certain districts, we are not insensible to other peculiarities in the constitution of waters, or to the power of other morbid causes to which the inhabitants of particular districts may be exposed.

Our knowledge of the active principles of mineral waters, notwithstanding the advances that have been made in their analysis, is very defective, and philosophers are by no means reconciled, as to whether chemical analyses are capable of discovering the cause of their effects. "This question," (says Dr. Murray, than whom few are so qualified to give an opinion,) "some have been disposed to de-

cide in the negative, from finding examples of waters possessed of active powers, in which analysis does not detect any ingredient of adequate activity ;”* and Dr. Murray mentions, as an instance, the celebrated Bath waters.

With such proofs of the imperfection of the art, it may be vain to hope to demonstrate by chemical analysis an agent that requires years to develop a comparatively local deformity : nor is the task rendered less hopeless by what Dr. Murray says of the waters of Ilkley, a mineral spring of considerable celebrity, and which is held in high estimation by several eminent medical practitioners ; yet he found this water uncommonly free from all foreign matter, and during the time he was engaged in the analysis, Dr. Murray had himself proofs of its medicinal efficacy.

SECTION VII.—*Examination of the Waters of Kemaon.*—
LV. The first waters to be examined are those of Goseragong (VI.), Deota (XXVIII.), Ager (XLIII.), Batuda (XXVII.), and Beechar (XLVII.)

General accounts of the situation and appearance of these respective springs have been already given ; but it may be proper to recapitulate part of what has been said, and to add such farther observations as may complete the account of their physical characters.

1. Goseragong water issues from a crevice at the base of a lofty precipice of limestone of the first floetz formation, and the jet is situated at the junction of that rock with clay-slate. The quantity of water which issues is about two gallons a minute, and its temperature is 67° Fahrenheit at all seasons, which is about the mean annual temperature of the place. It is perfectly limpid, and sparkles briskly when poured into a glass. The taste is slightly acid and agreeable, and a large quantity of calc-tuff is deposited from the stream, as it falls down the surface of the mountain. Its specific gravity is 1.009.

2. Deota. The basin of this spring is situated in a low part of the valley of Shore, and is composed of red clay, gravel, and marl, loosely cemented. The spring has a lengthened form, extending in the direction of the neighbouring strata ; and if two or three adjoining springs of the same character be included, the whole may be said to be about 300 yards long. The surface of the waters is disturbed like boiling furnaces, from the violence with which they issue from the earth. The larger spring discharges enough of water to put in motion the most powerful machinery. Temperature, 65° Fahrenheit, which it retains at all seasons. Taste less agreeable than Goseragong water ; but still sweet and equally brisk, but less crystalline. After remaining a certain time in corked bottles, it deposits slight bluish grey flocculi.† Its specific gravity is 1.001.

* Edin. Phil. Transactions, vol. vi. pp. 352-3.

† These flakes were collected on a filter, dried, and found to weigh about a tenth of a grain from a bottle of water. They were very slightly soluble in nitric acid ; the residue, which amounted to very nearly the whole, was melted on charcoal, before the blow-pipe, with borax, to which it gave a yellow colour.

The globule thus afforded, being reduced to powder in a glass mortar, and dis-

3. Ager. This water issues from the drift of an old copper mine, in the quantity of about half a gallon a minute: the source of the spring is between the first floetz limestone and graphite, which contains copper pyrites. It is perfectly limpid, and sparkles when poured fresh into a glass.

On standing for a few months in bottle, a slight precipitate of ragged putrescent-like matter descends slowly to the bottom.* Its specific gravity is 1·0009.

4. Batuda. This spring is exactly similar to that of Goseragong in all particulars, the jet having the same geognostic position, the water itself crystalline, acidulous to the taste, and possessed of the property of forming calc-tuff. Its specific gravity is 1·0010.

5. Beechar. Here we have an almost perfect agreement in the appearance of the springs with those of Deota. The water ascends in perpendicular columns, so as at once to form a considerable stream. The source of the spring is situated between the strata of limestone and clay-slate, and is concealed by an accumulation of gravel slightly cemented with calcareous tuffa. Temperature, 64° Fahrenheit, when the general air in the shade was 82° Fahrenheit, and it never changes: it has consequently the character amongst the natives, in common with the four preceding waters, of being a cold spring in warm weather, and a tepid one in the cold-season. The water is clear and very faintly acidulous to the taste. Specific gravity, 1·0011.

LVI. Effects of precipitants on these waters.

(A) At the spring they very faintly redden litmus, but the change is not permanent.

(B) Goseragong water four hours in bottle, at a temperature of 85° Fahrenheit, but secured as carefully as possible with a common cork, afforded, by the application of lime-water, two grains of dry carbonate of lime from three ounces of the water. Beechar, Deota, and Batuda waters, under similar circumstances, each afforded about the same proportion. I was unable to procure Ager water so fresh, and this test was not applied to it, until after it remained two months in bottle, when it afforded an opalescent precipitate, which it was scarcely worth while to weigh.

(C) Cold infusion of Brazil-wood is rendered blue by all these waters.

(D) Infusion of turmeric is slightly reddened by those of Beecher, Ager, and Goseragong.

(E) Tincture of galls displays slowly, copious, flocculent precipitates in all these waters. The colours are first reddish yellow, chang-

solved in nitric acid, was tested with prussiate of potash, and afforded a precipitate of iron.

* This flocculent matter from a bottle of Ager water was collected and weighed, but though bulky, was too light to make any sensible impression on the balance (not a very delicate one). It was moistened with distilled water, and gave a red tinge to oxymuriate of mercury.

On the application of the white flame of the blow-pipe to this matter, it entirely volatilized, so that it may be considered as of an ammoniacal nature.

ing to greenish yellow, from this to greenish blue, and eventually to black. To complete these changes, a shorter or longer time is required in the different waters; Beechar requires twelve hours, Goseragong fifteen, Deota and Batuda about eighteen, and Ager about twenty-four hours.

(F) Prussiate of acid effects no change in any of these waters, except an acid be added; a faint bluish tinge is then produced, and is more conspicuous in Goseragong and Batuda, but sufficiently perceptible in each of the others.

(G) Nitrate of barytes occasions no change in the appearance of any of these waters.

(H) Oxalic acid causes a slight precipitate in the waters of Goseragong, Deota, Beechar, and Batuda; but Ager water retains its crystalline appearance under this test.

(I) Nitrate of silver affords precipitates in all these waters; but the precipitate is re-dissolved with effervescence in nitric or any acid: and these precipitates are white, except that which is afforded by Goseragong water, which has a tinge of brown. The proportion of these precipitates, from 500 grains of each of the waters, is as follows: Deota, $\frac{1}{6}$ of a grain; Ager, $\frac{1}{8}$; Goseragong and Beechar, each afford $\frac{1}{12}$; and Batuda about $\frac{1}{14}$ part of a grain.

(K) Acetate of lead forms precipitates from each of these waters, and the precipitated lead dissolves with effervescence in acetic acid.

(L) Carbonate of potash causes a slight precipitate from Deota water, and carbonate of ammonia produces an ash-coloured cloud from that of Beechar.

INFERENCES.—1. From experiments A and B, connected with some of their physical characters, it is evident, that disengaged carbonic acid is present, which appears from C and D, to be in excess with a base; and therefore, it requires that it should be present in a quantity equal to one-sixth of the bulk of the water, at least so as to effect a change of colour in litmus.—(Vide note from Kir., 4 tom., p. 200, ed. 1807.)

2. From experiments C and D; as well as those of F, I, K, alkalies are evidently present: for although earthly carbonates or sulphate of lime would change the colour of Brazil wood to blue, it does not appear that these salts are present in sufficient quantity; and even if they were, they could have no effect on turmeric.

3. From experiments E and F, iron is the only metal whose presence is clearly indicated.* These precipitates are probably modified

* I have carefully avoided the notice of any doubtful effect produced by reagents in this inquiry, especially such effects as I had not the means of proving to be correct, or tracing to their causes. The prussiate of potash, prepared after the simple manner directed by Bergman, indicated a cupreous tinge in the waters of Beechar, Goseragong, and Ager: but I could discover no mineral acid, with which copper could be combined: and I knew by synthetical trials, made for the purpose, that particles of copper pyrites, if held in suspension, would yield no characteristic precipitate of copper with this test. Under these circumstances I took

by the presence of sulphate of lime, although sulphuric acid is not indicated by any of the other experiments.

4. Experiments G, I, K, prove the almost total absence of any of the mineral acids, either combined or free, in any of these waters. The precipitates in I and K, are evidently occasioned by an alkali, assisted probably in all but Ager water, by a small quantity of lime. A little earthy matter is indicated in Deota and Beechar waters by experiments L.

5. From a review of the whole of the foregoing, it appears, that the only substances in these waters are carbonic acid, a small quantity of alkaline matter, a little iron and lime (except in Ager water), with a scarcely sensible portion of earthy matter in Deota and Beechar waters.

LVIII. Principles of these waters collected by evaporation.

A wine bottle, or about 13,000* grains of each of these waters, were evaporated to dryness by solar heat, to which they were daily exposed in such a manner as to guard against accidental impurities falling into them. The following are the quantities of solid extracts from each, when dried at the temperature of 105° Fahrenheit.

Ager water, 2 grains, equal to $\frac{1}{6500}$ of the whole.

Beechar ditto, $2\frac{1}{4}$ grains, equal to $\frac{1}{5777}$ of the whole.

Goseragong ditto, 2 grains, equal to $\frac{1}{6500}$ of the whole.

Deota ditto, $1\frac{1}{2}$ grains, equal to $\frac{1}{8666}$ of the whole.

Batuda ditto, 2 grains, equal to $\frac{1}{6500}$ of the whole.

These precipitates consist, first, of a greyish, yellow matter, which was found on the higher margins of the porcelain vessels in which the evaporation was conducted. It was tasteless, and insoluble in water, but soluble with effervescence in muriatic acid, from which it was precipitated by oxalic acid, and thus proved to be carbonate of lime.

Second, blow the carbonate of lime, where slight metallic precipitates, distinguished by their lustre and iridescent appearance. They were placed on charcoal, and exposed to the white flame of the blow-

the liberty to apply to the Medical Board, for permission to be furnished with a small quantity of the prussiate of potash, which is used for chemical purposes in the Honorable Company's Dispensary in Calcutta; and I feel much pleasure in acknowledging the prompt and courteous way in which the request was complied with.

The prussiate of potash thus procured, I found to be very powerful in discovering the smallest quantity of the salts of copper in solutions. Yet it did not confirm the cupreous indication of the other alkali; but I found both preparations equally incapable of detecting the presence of metals in their mineral state.

* A quart of water (wine measure), at 62° Fahrenheit, Barometer 30°, weighs 58.443 grains troy; but these waters were exposed to a temperature of above 80° Fahrenheit, and at an elevation of 6000 feet: so that in assuming 13,000 grains as the weight of each bottle of water evaporated, we may not be far from the truth. Although a table of equivalents between the measure and the weight of fluids, at different altitudes and temperatures, would be highly useful in such inquiries; here of course we do not aim at perfect accuracy, and do not pretend to have suffered any inconvenience from the deficiency here alluded to.

pipe, when they gave out an aerial stream, which carried off a considerable portion of them. The remainder blackened in all but the extract from Ager water, which, with that of Beechar, gives a yellow colour to the glass of borax; while the others render that glass dark green. Patches of metal are seen in the globules thus produced from each of the waters; and these globules, separately reduced to powder in a glass mortar, and dissolved in nitric acid, afford in their solutions, under the application of the prussiate of potash, some a purple, and others a deep Prussian blue precipitate.

The gas which first escapes in this process, is no doubt carbonic acid, from saline particles of metal, or probably from adhering portions of the earthy portion of the precipitates; while the blackness which the imperfect scorix assumes, is occasioned by the sulphur contained no doubt in particles of pyrites.

The third constituent part of the extract of these waters is found in largest quantity near that portion of the bottom of the vessel from which the last portion of the water ascended, and consisted, as well as I could ascertain, of carbonate of soda, and a small quantity of carbonate of potash, which gave a deliquescent appearance at first to all the precipitates except Batuda.

As to the proportion which each ingredient in these waters bears to the aggregate extract of the same water, it may not be worth while mentioning, and perhaps might be affecting greater nicety than the means adopted may justify: but as it may afford a brief method of comparison, between the results of these and similar researches, I may as well mention them.

1. Ager Water.	2. Gosseragong Water.	3. Deota Water.
Carb. lime, $\frac{1}{5}$	Carb. lime, $\frac{1}{3}$	Carb. lime, $\frac{1}{3}$
Carb. iron, $\frac{1}{5}$	Carb. iron, $\frac{1}{3}$	Carb. iron, $\frac{1}{3}$
Carb. soda, $\frac{2}{5}$	Carb. soda, }	Carb. soda, }
Carb. potash, and a trace of sulph. } $\frac{1}{5}$	Carb. potash, }	Carb. potash, }
lime and sulph. }	Earthy sulphu- } $\frac{1}{3}$	Earthy. }
	reous,	
4. Beechar Water.	5. Batuda Water.	
Iron, $\frac{1}{3}$	Carb. lime, }	
Carb. soda, $\frac{1}{3}$	Carb. magnes. } $\frac{2}{5}$	
Carb. lime, }	Carb. soda, $\frac{1}{5}$	
Carb. potash, }	Carb. iron, $\frac{1}{5}$	
Sulph. earthy, }		

Beside the above minute quantities of solid ingredients, carbonic acid is also to be considered as present in more than ordinary proportion in these waters. The high atmospheric temperature to which they were exposed, in carelessly corked bottles, for some time before they were submitted to experiment, as well as the want of any pneumatic apparatus, tend to render the quantity of carbonic acid uncertain; but an estimate may be formed by its effects, even under these unfavourable circumstances, in saturating lime. The quantity of calcareous earth thrown down from lime-water in the foregoing experi-

ments, must be considerably under what would have been afforded, had proper means been resorted to in order to prevent the dissipation of the gas by the use of stopple bottles at the springs; but I regret to say, the removal of the troops to which I was attached in Kemaon, deprived me of the opportunity of carrying into effect a few experiments (such as my means enabled me to devise) with the view of determining the gaseous contents of these waters.

LIX. Having examined the waters of those villages whose inhabitants are most severely affected with Goitre, the question is not, whether we have detected any ingredient in them, which we can conceive capable of causing the disease; but whether these waters differ in any of their characters from spring waters in general, and more especially from the waters of those springs in their immediate vicinity, which are used by other villages of the same people, but who are free from the complaint. Could such a difference be established on clear and indisputable principles, we might then congratulate ourselves on having reached the second tangible position in this interesting inquiry.

The waters now to be examined for the purpose of comparison, are selected indifferently from those localities whose inhabitants are free from Goitre.

1. The water from the village of Paruree (XIII.)

2. The water from Boorikote (XX.)

3. The hospital spring at Lohooghat.*

4. The spring situated between the hospital and the lines at Lohooghat.†

5. The spring on the east of the lines at Lohooghat, which is used by the troops at that place.‡

6. The spring on the north of the lines, at the same place, also used by the troops.§

These springs are all situated in clay-slate, and the persons who use their waters are perfectly free from Goitre.

Respecting springs in clay-slate generally, it may be remarked, that they are much more numerous than those in limestone, in proportion to the extent of the two rocks, and that they do not appear to be derived from any great depth in the earth.

Their temperature, consequently, falls considerably during the winter, and rises again in summer. They are usually met with in sequestered spots, and covered by dense cupolas of flourishing shrubs. Their waters never rush from the earth with violence, or in greater quantity than to occasion a placid ripple from a few extending circles on their surface. Their waters are clear, but rarely very crystalline or sparkling; and in all these circumstances they form a striking contrast

* This water was used exclusively by the sick, and by the servants attached to the hospital.

† Used generally by officers, servants, and other camp-followers.

‡ Used by the sixth Company Thirtieth Regiment, during the residence of the Regiment in Kemaon.

§ Used by the Light Company of the Regiment, during the same period.

with the springs derived from limestone, whose chemical properties are often developed at first sight, by the immense deposits of tuff with which they are connected, the ruined and broken character of surrounding rocks, the want of vegetation, and the violence and quantity of their waters. It would be tiresome, as well as useless, to describe, separately, the physical qualities of each of these waters: they are all clear and agreeable to the taste, and mix well with soap.

Of eleven different springs derived from clay-slate, which I tried in various parts of the province, including the six waters above enumerated, the specific gravity of nine was found to be 1.001, and the other two, from Paruree and Kumora, (XIII. and XVI.) in the valley of Shore, were each, 1.0014.

Effects of Re-agents on these Waters.—(A) They have no effect on the colour of litmus.

(B) Lime-water affords no sensible precipitate when mixed with any of these waters.

(C) Cold infusion of Brazil-wood is changed from red to light blue by Paruree and Boorikote; but the other waters only render it bluish grey.

(D) The natural colour of turmeric is unchanged by any of these waters.

(E) Prussiate of potash occasions no alteration, with or without the addition of acid or alkali, in any of these waters; but tincture of galls occasions a slight precipitate in those of Paruree and Boorikote. This is, during the first six hours, light-coloured; it then gradually darkens, and in about forty-eight hours, it is found to be greenish brown.

(F) Nitrate of barytes occasions no change in the appearance of any of these waters.

(G) Oxalic acid discovers no precipitate in any of them.

(H) Nitrate of silver occasions precipitates in these waters, which, with one exception, are more or less insoluble in nitric acid; the insoluble precipitates are in the following quantities, from three ounces of each water. Large well, east of the lines at Lohoghat, $\frac{1}{5}$ of a grain. Boorikote spring, $\frac{1}{8}$ of a grain. Well, north of the lines, Lohoghat Hospital spring, and spring between the Hospital and the lines at that place, each $\frac{1}{10}$ of a grain. Paruree spring affords with this test a slight precipitate of a brownish hue; but the whole is dissolved in nitric acid.

(I) Acetate of lead affords copious precipitates from all these waters; and the following are the least soluble of them in acetic acid. 1, Boorikote; 2, Paruree: the others are entirely dissolved in distilled vinegar.

(K) Alkaline carbonates afford only a slight separation of earthy matter from Paruree water.

INFERENCES.—1. From experiments A and B, in connexion with those of C and D, as well as from some of their physical properties, it is pretty evident that these waters contain little or no disengaged acid.

2. Experiments C, H, and I, are indicative of a minute portion of a neutral salt, and a trace of muriatic acid is discovered by experiment H, in all but Paruree; in which experiment, I, indicates a slight trace of sulphuric acid. This indication is not confirmed by the experiment F; but acetate of lead being more powerful than nitrate of barytes in detecting sulphuric acid, the presence of a sulphate in this and Boorikote waters is scarcely to be doubted.

3. From experiment E, there cannot exist a sensible portion of any of the metals in these waters, unless the change that takes place in those of Boorikote and Paruree, under the application of the tincture of galls, be considered a proof of the presence of iron. It is, however, in confirmation of the presence of sulphuric acid, as indicated by experiment I: the ferruginous indication being here probably modified by the sulphate of lime.

4. From experiments G and K, earthy matter is not contained in any of these waters, except in Paruree; and here the quantity detected by K, must be very trifling.

The following solid extracts were derived from the evaporation of 13,000 grains of each of these waters, at a gentle sand heat.

- | | | |
|---|---|--|
| 1. Paruree afforded 1 grain, which was constituted as follows : | } | Alkaline and earthy carbonates, |
| | | $\frac{1}{3}$ Sulphate of lime, $\frac{2}{3}$ nearly ; iron, a trace. |
| 2. Boorikote afforded $\frac{3}{4}$ of a grain, which was constituted as follows : | } | Earthy carbonates, $\frac{1}{3}$; Sulphate of lime, $\frac{2}{3}$; iron, scarcely a trace. |
| | | |
| 3. Hospital spring at Lohoo-gat, 1 grain composed of, | } | Sulphate of lime, $\frac{2}{3}$; muriate of soda, $\frac{1}{3}$. |
| | | |
| 4. Spring between the Hospital and the lines at Lohoo-gat, 1 grain. | } | Sulphate of lime, $\frac{1}{2}$; Muriate of soda, $\frac{1}{2}$. |
| | | |
| 5. Spring east of the lines, Lohoo-gat, used by the 6th Company, 30th Regt. N. I. $\frac{3}{4}$ of a grain. | } | Muriate of magnesia, $\frac{1}{3}$; Muriate of soda, $\frac{2}{3}$. |
| | | |
| 6. Spring north of the lines, Lohoo-gat, and used by the Light Company, 30th Regiment, 1 grain. | } | Clay, $\frac{1}{3}$; Sulphate of lime, $\frac{1}{3}$; Muriate of soda, $\frac{1}{3}$. |
| | | |

It now appears from comparison, that there is a difference in the nature and quantity of extraneous matters contained in the waters just noticed, which, though slight, yet is sufficient merely to distinguish them from the waters of limestone. When philosophers are reconciled, as to whether chemical analyses are capable of detecting the sources of the effects of mineral waters, we may then venture to speculate with more advantage on this subject. That there are peculiar distinctions between the waters of different rocks cannot be denied, and that these are less conspicuous when reduced to chemical analysis, than when viewed in reference to

their physical and morbid effects, is only another instance of the imperfection of chemistry, as a means of developing some of the more complete elaborations of nature. No doubt, my want of skill in the performance of chemical operations, as well as the want of adequate apparatus, tended to render my success much less than it might have been. There is, however, one grand defect in these analyses, which tends still more to render their result unsatisfactory; namely, the smallness of the quantities of the different waters examined.

Appendix to the foregoing Analyses.—Having been unable to procure distilled water of sufficient purity for the foregoing inquiries, owing to the imperfection of the best apparatus I could construct; I instituted a few preliminary comparisons between such distilled water as I could procure, the water of melted snow, and rain water.

As the result of these experiments, in regard to rain water, is different to what has been observed by others, it may not be devoid of interest to describe the process adopted, in order that the nature, or at least the value of the difference in question, may be rightly estimated.

The snow-water was procured in glazed earthen vessels, soon after a heavy fall that took place about the 20th December, 1833; after having been melted, the water was placed in bottles, carefully corked.

The rain-water was collected in glazed porcelain vessels, with every care, on the 7th July, 1834, a day on which nine inches of rain fell at Lohooghat; during the previous day, four, and the succeeding day four and a half inches of rain fell at the same place: so that any impurities that this water contained, may be supposed to have been derived from the general qualities of the atmosphere. This water was left a month or six weeks in loosely corked bottles.

A crystal, weighing 3 oz. 6 drs. and 4 grs. in air, at 72° Fahrenheit, was weighed in each of these waters, at the same temperature, and found to be 2 oz. 2 drs. 41 grs. in the rain and distilled waters, and half a grain heavier in the snow-water. Each of these waters gave a perceptibly blue tinge to the infusion of Brazil-wood; the snow-water, however, more obscure in its effects than either of the others, which, together with its lighter specific gravity, induced the belief of its being the purest of the three.

In order to ascertain the cause of the effect of the rain-water on the delicate test of the Brazil-wood; and recollecting that Bergman had discovered rain-water to contain muriate of lime; that Morveau had discovered only sulphate of lime in it, while in England it has been usually found to contain carbonate of lime; I was anxious to ascertain the nature of the impurity of this fluid, in a part of the world so remote from those places where the other trials had been made; as well as to know how far rain-water might answer as a substitute for distilled water, in the researches in which I was engaged.

1. 13·000 grains, by measure, of rain-water, were evaporated spontaneously to 1·000, in a broad porcelain dish, when a very slight deposit was found to have taken place by the rough sensation it occasioned to the end of the finger, on rubbing the bottom of the vessel gently.

The supernatant fluid was decanted and evaporated to dryness by a gentle sand heat, when half a grain of a grey precipitate was afforded.

2. This precipitate was at first partly soluble in cold water, slightly deliquescent, and insoluble in distilled vinegar. On standing for a time, it became dry, and assumed the property of effervescing, and dissolving quickly in acids.

3. After exposure to the blue flame of the blow-pipe, it loses the property of effervescing with acids, nor does it acquire the property of lime; for it retains its solid and compact form if immersed in water—if boiled, its size is increased rather than diminished.

4. About a tenth of a grain was dissolved in sulphuric acid, when after standing, a minute particle of selenite was deposited, near equal in quantity to what a thirtieth part of a grain of carbonate of lime would afford. The clear acid solution was then rendered turbid by the addition of carbonate of potash.

Second Series of Experiments.—1. The dish in which the first part of the evaporation was conducted, and to which a slight precipitate adhered, was washed with half an ounce of the same water: the whole was filtered, when scarcely any solid matter was collected. the clear solution was first tested for sulphuric acid, by instilling a solution of the nitrate of barytes, when no precipitate or change took place. Alkaline carbonates, if present, were then saturated with nitric acid, and nitrate of silver added, when an instantaneous precipitate was formed, which thus detected muriatic acid.

2. Another solution was now made by dissolving, by means of nitric acid, a small portion of precipitate No. 1, of first series of experiments, in a few drachms of the same water, when oxalic acid barely afforded a slight indication of lime; but carbonate of ammonia, added afterwards to the same solution, afforded a precipitate, too slight indeed to be examined; but which, from the experiments already related, may, as far as can be determined from experiments on such a small scale, be considered as carbonate of magnesia.

If the muriatic acid and lime, both of which substances were detected in the above experiments, were alone the only contents of this water, they would be melted on the slightest application of heat; but on mixing equal parts of carbonate of magnesia and muriate of lime, a compound is formed, which is infusible before the greatest heat of the blow-pipe, and which presents analogous characters to those of the extract from the rain water. Thus the presence of magnesia is probably for the first time indicated in rain water.

SECTION VIII.—*On the Connexion between Goitre and Cretinism, their Nature and Causes.*—LX. From Goitre, as it appears in Ke-

maon, in its more distinct form, as well as in conjunction with Cretinism, there are many reasons for believing that both complaints are intimately connected with each other; if not identically the same, they are mere modifications of different degrees of intensity of the same causes.

It may be remarked, that in those little communities or hamlets, where Goitre prevails to a certain extent, the people are characterized by a want of enterprise and bodily vigour, as compared with their immediate neighbours, who are exempt from the disease. The distinction in this respect increases, not always, but in general, with the extent and severity of Goitre, until, at length, both mind and body become so deformed, that the unfortunate Cretin is scarcely to be recognized as belonging to the human species.

LXI. Mr. Bramley, in his excellent account of the Goitre in Nepal, (an adjoining kingdom,) remarks in a note, that he never saw Cretinism, or any thing approaching to it, in that country. If instead of being attached to the court of a foreign state, Mr. Bramley had been so situated, that he could have passed from the capital into the interior, and there pursued his inquiries in the huts of the scattered population, he would probably have seen cause to have expressed a different opinion. Nay, if I had been guided by information derived from old residents in Kemaon, rather than by my own labours, this treatise would have contained a similar assertion; and as to information received from the common natives of India, in particular, on any thing relating to statistics, it is not only not worthy of credit in a scientific point of view, but had better in such investigations be dispensed with altogether.*

Most of the conflicting opinions relating to this disease, have arisen from authors and travellers resting their facts on no better foundation, than that of the mere statements they derive from others, and thus but too often make popular error the basis of general conclusions.† I was assured by persons, for whose opinions I have great respect, that no such beings as Cretins existed in Kemaon; yet in the course of my researches, in which I made it a maxim to take nothing for granted that I did not see and prove by the evidence of my own senses, I discovered whole villages of these unfortunate people.

* I make these remarks generally, in order that we may avoid, as much as possible, a very common source of error.

† From Peeleabit to the confines of Rohilcund and Hurdwar, is stated by Mr. Bramley, on the authority of another author of great respectability, to be a link in the chain of affected districts, in the plains of Hindostan, extending from the 27° to 30° N. Lat. Yet I have traversed the Tarai in this direction from Peeleabit to Burmdeo pass, and from thence to the vicinity of Rudeerpoor, crossing from thence to Moradabad, without having met with a single case of Goitre; although I made it a point to visit every village of the Tarai, or peculiar people, who are the only permanent inhabitants of this unhealthy tract of country, I could, during a march of at least 150 miles. Fairs are, however, held in the Tarai, during the cold season, at which the inhabitants of the mountains attend; and in this way, the mistake may have arisen.—See Cal. Med. Trans. vol. vi. p. 182.

LXII. In Goseragong, the people are generally affected with Goitre, yet there are no Cretins among them. The same may be said of Deota; but in the villages of Salmora, Oliel, Goraght, Tomilly, and Ager, which contain 138 inhabitants, 76 have Goitre, and 42 are Cretins; while there is not one of the latter class to be found in any of those villages that are exempt from Goitre.

Hence it appears, that in a population in which Goitre prevails to the extent of rather more than 50 per cent., 30 per cent. are Cretins; while in the remaining portion of the people, amongst whom Goitre does not extend to above nine per cent., we have no Cretins. Thus far, it is clear, that the two diseases are connected with each other, not merely endemically, but they are complicated and blended together in the same individuals.

LXIII. In describing the disease (XLIX.), it is stated, that children are exempt from it until the age of three years. This is also in conformity with the observation of Mr. Bramley; nor has any authenticated instance occurred of Congenital Goitre, although a condition of the bronchial gland of some of the lower animals is congenital, a circumstance which of itself forms a distinction between the nature of the disease of animals and the Goitre of the human subject, that we cannot possibly overlook.

LXIV. Delicate, (apparently,) ill-fed, and neglected children, in certain villages, become affected by the disease in the course of a year or two after they are taken from the breast. It is usual for them to have long matted hair, large joints, tumid abdomens, and slender limbs.

The tumour on the neck makes greater or less progress for a time; but usually becomes interrupted before it attains a larger size than that of an orange, and the general health now rapidly improves.* In other cases, numerous bronchial glands are simultaneously attacked; and the augmentation of the tumours, which soon unite, suffer no abatement: while the general development of both mind and body, is for the time suspended; or the materials of the latter are rather directed to the formation of irregular accumulations, generally on the neck, than to the uniform increase of the body. Nor does this morbid action, this *error loci*, suffer any interruption, until the subject has attained the adult age.

LXV. With respect to the first of these cases (LXIV.), the interruption to the growth of the tumour does not take place sometimes until it has reached its full size. The necessary period for this varies from ten to thirty years: and often the tumour continues slowly to increase during the life of the patient, but so insensibly, that at an advanced age, it is frequently found of an inconsiderable

* Alibert, from human dissections, divides the tumours into simple and compound, according to the nature of their contents. Compound bronchocele illustrates these views; Alibert having found such tumours to contain calcareous, sarcomatous, and fatty matters, as well as other heterogeneous contents, such as hair, &c. Human dissections not being tolerated in Kemaon, I can offer no remark on the pathological character of these tumours.

size. In such cases, the general health continues good ; and hence, even in villages, where the exciting cause may be supposed from the number affected to be very intense, we often find strong, robust, and otherwise healthy adults with Goitre of every size and shape—a circumstance which has erroneously induced some to believe, that the disease is merely local ; and as these are the sort of cases that usually occur to common observation, the error in question is by this means rendered the more general.

LXVI. The second variety of the disease (LXIV.), or that which occasions the peculiar condition called Cretinism*, is distinguished, from the last described, by a greater intensity of all the symptoms. The patient is invariably, and indeed necessarily, seized, during the first stage of life, i. e. before the age of five years ; and the disease continues without interruption throughout the stage of adolescence. During this time, the living materials of the body are wasted by a depraved action of the absorbent system, on the monstrous development of certain organs ; while the natural growth of others is proportionably prevented, or suspended. Hence the limbs are short and crooked, the spine distorted, the head often of enormous size, the features bulky and idiotic, and glandular swellings are common on various parts of the body, but seldom entirely absent on the neck, where the first signs of the disease are displayed in the enlargement of the bronchial glands.†

* Foderé and others ascribe the weakness of the mental energy of Cretins, to the state of the thyroid gland—an opinion which Mr. A. Burns, as well as Mr. Cooper, (Surg. Dic.,) very properly suspect to be without foundation, from the fact of Cretins having been seen without much enlargement of the thyroid gland. These eminent Surgeons were not, however, justified, on this account, in considering the connexion between Cretinism and Goitre as merely accidental ; as if mental imbecility were an essential symptom of Cretinism.

The Cretins in Kemaon are characterized by *general deformity of the body ; but especially of the “ head and neck ; countenance vacant, and stupid ; mental faculties feeble, or sometimes idiotic ;”* sensibility obtuse ; mostly with enlargement of the thyroid gland.

This description, with exception of the words in Italics, is from Dr. Good's Nosology. The deformity of the head, a symptom of the general disorder, may of itself give rise to “ the mental faculties feeble,” and “ sensibility obtuse,” as it is only in those who are thus deformed, that these symptoms are very apparent.

It must, however, be remarked, “ that the countenance vacant and stupid,” in Dr. Good's Characters of Cretinism, are very arbitrary distinctions, and may often be only the false effect of disproportionate features. In proof of which, I have only to mention, that although the Cretins of the village of Ager have these characters in an extreme degree ; yet they perform the practical duties of working a copper mine in their vicinity—an occupation in which they display at least some mechanical skill.

† Cretins are sometimes seen without any great enlargement of the bronchial glands ; but such cases are rare, and they are generally otherwise much deformed, so as not to be mistaken for congenital idiots. Tumours on the elbows, knees, and other joints, as well as along the course of the lymphatics, are common with the Cretins of Ager (XLIII.), and other villages in Kemaon.

The progress of all this deformity usually continues until the end of the period of adolescence, when it happily is not farther extended.

Such physical derangement, affecting three-fourths of a whole community, is calculated to impair, in a moral point of view, their intellectual faculties; but notwithstanding any allowance we can make for this, there is still reason to fear that, in the majority of cases, both mental and corporeal functions suffer alike. Yet the Cretins do not in general, even in their most deplorable state, equal the imbecility of natural idiots; but on the contrary, they retain at least the full extent of mental power they acquired in childhood, previous to the attack of the disease. To this merciful peculiarity in the character of their affliction, which thus spares to after-life the intellectual integrity they acquired in infancy, they owe that glimmering of reason, which enables them to afford those offices of humanity to each other, which their unfortunate condition and retirement must call so frequently into requisition.

LXVII. From the above description of the phenomena of disorder, it must be evident to those who are at all conversant with what is at present known, regarding the laws which regulate the animal economy in health and disease, that Goitre and Cretinism are but varieties of the same disorder, and that the proximate cause of both, is an *error loci*, or derangement of the functions of the absorbent system.

On the Remote Cause.—LXVIII. In conformity with the custom of pathologists, the remote cause may be divided into predisposing and exciting causes. In the present instance, indeed, this division is indispensable.

A. Predisposing cause. The liability of some to certain diseases, and the immunity of others, though equally exposed to exciting causes, are facts that have been universally observed in all ages, and with respect to all diseases, even including perhaps the plague.*

“There are many reasons to induce us,” (says Dr. Robertson,) “to regard Goitre as a particular variety of Scrofula: in this country,” (England,) “it is only seen in highly scrofulous constitutions.” Now although I cannot venture the length Dr. Robertson has gone; although I cannot venture to say, that Goitre is only seen in Kemaon in highly scrofulous constitutions; yet I must bear testimony to the accuracy of the remark to a certain extent; and beyond this, what is stated (LXV.) will explain the cause of numerous healthy, or at least stout, healthy-looking persons being seen with Goitre. The opinion of Dr. Robertson has often been suggested without assigning adequate reasons, and as often opposed on still more inadequate grounds; while the great bulk of

* Of the plague, Bacon observes, “’Tis likewise noticed to go in a blood, more than from stranger to stranger.”

those to whom arguments on both sides were addressed, were unable to decide, for want of practical acquaintance with the points at issue. I shall here transcribe from Mr. Cooper's Surgical Dictionary, the distinctions stated to exist between Goitre and Scrofula, as enumerated by Dr. Postiglione; and to save repetition, I shall take the liberty to refer the reader to the articles in this section, by comparison with which, each of the supposed distinctions will be found to give way.

"1. Scrofula is a disease of the general system, but Bronchocele is merely local."

This distinction is removed by what is stated (LXV.), where the error is accounted for, and explained: in farther refutation (LXIV.) (LXVI.) (LXVIII.)

"2. Bronchocele begins at a later age than Scrofula, and does not, like the latter, spontaneously disappear."*

This distinction is completely refuted by what is stated (LXIV.) (LXV.) (LXVI.)

"3. Scrofulous glands often suppurate; Bronchocele rarely undergoes this change."

This is the only real distinction, and is to be referred merely to a modification of the effects of the same latent cause, by exciting powers somewhat different in their nature, and consequently in their effects.

"4. The thickening of the upper lips of scrofulous subjects is not an attendant on Bronchocele."

I observed this character, in particular, in some of the strangers who contracted Goitre at Petoragur;† but it is not, after all, a more unequivocal sign of scrofulous diathesis than many of those enumerated (LXIV.) as characterizing those who are subject to the Goitre.

The only other distinctions between Scrofula and Goitre, pointed out by Dr. Pastiglione, are very trifling; and the whole of them merely refer to the difference between the simple form of Goitre and Scrofula; but if the connexion of the former with Cretinism be granted, as I believe it must, the difficulty of longer defending any sound distinction between these diseases, except as varieties, is much increased.

* All authors agree, that the usual period for Scrofula to appear, is between the age of three and seven years: but that it may arise any time before puberty, seldom afterwards; so that here we have really no distinction between Scrofula and Goitre. It might be difficult to conceive, how a large tumour could spontaneously disappear; but it is very common for the augmentation of the tumour in Bronchocele to become permanently suspended, without the aid of any remedy.

† The person alluded to (in the table attached to the Introductory Section), page 263, who contracted a larger Goitre at Petoragur, had not merely the thick lips, but the expanded nostrils, and the strumous frown on the brows. He was a servant in the employment of the officer who commanded the post, and is still, I believe, a camp-follower of the 30th Regiment.

From what has been said during the consideration of the predisposing cause, we are led to the conclusion, *that the same inherent diathesis, that under certain circumstances gives rise to Scrofula, would, under exposure to the exciting cause of Goitre, occasion that peculiar form of disease.*

B. Exciting cause. This cause has been traced in the foregoing inquiry to certain strata of the earth, under circumstances that are calculated to convince us, that the waters are the mediums by which it is conveyed to the bodies of men; but that the analysis of such waters, like those of some of the most celebrated mineral springs,* are incapable of detecting any ingredient to which we can directly ascribe their effects, LIV. p. 329.

Finally, that having thus far traced the source of the endemic, we have reached, in regard to the exciting cause of Goitre, the utmost limit of our knowledge of endemic contagions generally: but whether there be any other strata, capable of yielding this peculiar contagion, than those we have described; and whether the waters are the only mediums by which it is conveyed, are points which still remain to be determined.

Cæsarean Operation in New York.—Dr. Christopher C. Rice, on Thursday last, performed the Cæsarean operation on a person residing at No. 214, Stanton-street, in part successfully. And the Doctor stated, as his opinion, if the patient had not been at the time of operating, “in articulo mortis,” that she would probably have recovered.

This is the first time, we believe, this dangerous and arduous operation has been attempted by any surgeon in this city.—*N. Y. Times.*

“We should like to learn why, if it was necessary to perform this very dangerous, and we suspect, in this case, uncalled-for operation, at all, the woman was suffered to become in articulo mortis, before the operation was attempted. What does ‘in part successfully’ mean? Was the child saved? If not, and the mother was destroyed, how can the operation be considered in part successful? The whole case looks to us like a desperate attempt to get the Doctor’s name in the papers, by performing an operation, requiring more boldness than skill in the operator, upon a poor woman in the last agonies of death. The editor of the American observes, ‘We have never read a more ludicrous effort at a puff.’ It would be ludicrous to us also were it not for our sympathy for the unfortunate patient.”

The above comments on the first notice of the operation in the Times, we copy from the New York Sunday Morning News. We shall reserve our own observations till we are furnished with an exact report of the case through the pages of some of our exchange

* As the Bath waters, for instance.

Journals, or get the exact facts from some correspondent.—*Boston Medical and Surgical Journal*.

Smallpox in Boston.—Eighty patients have been admitted into the Smallpox Hospital at the Boston Quarantine Ground, in 1836. A large proportion of these were removed from various parts of the city. Only four have died with the smallpox out of this great number, in the time mentioned. At present, fourteen patients are confined to the wards—and fortunately, all convalescing.—*Ibid*.

Mortality in 1836.—In Baltimore, the total number of deaths, according to a recently published bill of mortality, was 2373. According to the census of 1830, the population of that city was 80,990; of which 18,907 were coloured persons—14,783 being free, and 4124 held in slavery. The oldest white person who died last season, had reached the advanced age of 112; and the oldest coloured person, a female, had attained to 120 years! Eight females who died there in 1836, had each lived over a century—a good comment on the healthfulness of the city. Of consumption, 316 died, being the greatest mortality by any one disease. There were 181 still births; 191 by cholera infantum; 83 of bilious fever; 30 of scarlet, 77 of catarrhal, and 41 of typhus fevers. By unknown infantile maladies, 478; suicide, 10; intemperance, 50; and by old age, 137. August was remarkable for the greatest number of interments, there having been 377. June was strictly the most exempt from sickness, although there were 133 deaths in that month.

In Warwick, Mass., the number of deaths, in 1836, was *ten*—population 1150. Only one death to 115 persons.

The number of deaths in New York, the last year, was 8009, being 927 more than in 1835. One thousand five hundred and fourteen, nearly one-fifth of the whole, were caused by consumption.

The number of interments in the town of Lynn, Mass., containing about 10,000 inhabitants, was 185 during the year 1836.

In West Hartford, Ct., the number of deaths was 17—two less than during the preceding year.—*Ibid*.

A Hybrid.—Brandeth, the fabricator of grandfather pills—a transatlantic adventurer—a nostrum monger—a blower of his own brazen trumpet, who will unquestionably pocket a fortune quite equal to Swaim's, by practising upon the gullibility of the ignorant, has issued a prospectus of a weekly Journal, to be issued in January, called *The Brandethian Weekly Journal*—to treat of news, domestic economy—meaning buying the editor's quack medicines, of course—and all other things in general. The scheme is a grand one. The imposition is excellently devised. Nothing is too absurd or too monstrous for this intellectual age.—*Ibid*.

The Virginia Dwarfs.—This is truly a remarkable family of pigmies. Major Walters, one of the three, is about twenty-six years of age—weighs forty-three pounds, and is three feet and seven inches tall.

Miss Roxana is twenty years of age, three feet high, and weighs thirty pounds.

Miss Catharine is eighteen years of age, three feet one inch high, and weighs thirty pounds.

Master William is in his ninth year, is two feet eight inches high, and weighs twenty-two pounds.

The father of these children is a man nearly six feet high, and says that his wife was of the ordinary size. The Major also has with him a sister, we believe between Catharine and Roxana, by the same mother; she is of masculine appearance.—*Ibid.*

Power of Galvanism.—A paragraph is going the rounds, said to have been extracted from a late foreign Journal, but which, however, we cannot find in any of our exchange favors, which describes the restoration of speech, taste, and hearing, in a Polish officer who had been deprived of them ever since the battle of Ostrolenka, in consequence of an unexpected discharge of cannon. The concussion was so tremendous as to throw him down; and although there was not the slightest external wound, when he recovered himself he found that two of his senses, viz. taste and hearing, as well as the power to articulate words, were utterly gone. All the eminent physicians of Vienna had made trial of their skill to restore the loss, but ineffectually. Being finally conveyed to Paris, the advice of M. Magendie was sought. He applied the galvanic fluid to the tympanum, and by that means speedily overcame the deafness. On the third trial of the galvanic action, the officer began to perceive the returning sense of taste. This is all that is worth republishing about the matter, till our information is derived from an unquestionable source.—*Ibid.*

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PART I.
ORIGINAL COMMUNICATIONS.

ART. XV.—*Observations on the Use of certain Remedies in Typhous Fever, and its Complications.* By ALFRED HUDSON, M. B., T. C. D., Physician to the Navan Fever Hospital.

IN presenting to the readers of the Dublin Medical Journal a short account of cases treated in this hospital, from August, 1834, to August, 1836, I shall confine myself almost exclusively to the narration of facts, and these, too, of no very peculiar or pretending character. The hospital contains, in general, only thirty-two beds, the number being occasionally increased to forty. It is found impossible to confine the cases admitted to those of *pure fever*; many of the *phlegmasiæ* simulating this disease to such an extent as to impose upon a non-medical observer, and in consequence to cause their being sent in from the surrounding country. These, too, being mostly neglected cases, their mortality is much greater than that of pure fever, as the following table will shew.

Disease.	No. of Males.	No. of Females.	Died.
Fever	163	200	11
Intermittent do.	2	0	0
Scarlatina	4	7	0
Variola	2	0	0
Diffuse Cellular Inflammation	1	0	1
Arthritis	2	2	0
Tonsillitis	0	2	0
Bronchitis	10	5	0
Acute Phthisis	1	1	2
Disease of the Brain and Hydrocephalus	4	2	3
Peripneumonia	12	5	2
Pericarditis	1	1	0
Enteritis	4	0	1
Trifling cases, chiefly Catarrhal and Dyspeptic	4	9	0
	210	234	20

It thus appears that the ratio of deaths in fever cases was one in thirty-three, while in the entire number it amounted to one in twenty-two.

Of the relative mortality of different species of fever, that of the typhoid was, of course, the greatest. Three-eighths of the whole number were computed to belong to this division, and of these, six died. As they presented some varieties in their progress, a short detail may be not uninteresting.

CASE I.—James Conolly, æt. 19, was admitted on the eighth day of fever. The only symptom worthy of notice was delirium, which was at times rather active. On the morning of the fourth day, soon after awaking from a tranquil sleep, he had a violent convulsive fit, lasting ten or fifteen minutes, in which he expired.

Dissection shewed only slight fulness of the vessels of the pia mater, and an increased number of bloody spots in the substance of the brain. The other organs were healthy.

CASE II.—Michael Smith, æt. 40, admitted on the ninth day of typhus ; had been delirious for near a week, and complained much of his head ; he had also slight cough, with scanty sputa ; (liq. chlor. sodæ, vesicat. nuchæ.) On the following day he had difficulty of swallowing and hoarseness ; the internal fauces presented a dry appearance, with red, small spots, like petechiæ. Delirium increased ; all the symptoms continued to become worse, and on the fourth day he died.

Dissection.—The only morbid appearance was a highly congested state of the mucous membrane of the larynx and trachea, which was smeared with a mahogany-coloured viscid mucus. Brain, &c., healthy.

CASE III.—John Currie, æt. 25, of dissipated habits and broken constitution, was admitted on the eighth day of low fever ; for twelve days seemed to be slowly improving upon the use of the liq. chlorid. sodæ, but then became suddenly affected with delirium and subsultus. These symptoms were readily subdued by the tartar emetic and opium mixture of Dr. Graves, and by the musk bolus, but were followed by large discharges of bloody fluid from the bowels, purple patches of great size on various parts of the body, &c. He continued to sink till the seventeenth day after admission, when he died. No examination of the body was allowed.

CASE IV.—P. Caffray, a boy aged eight years, was admitted nearly at the same time, and ran a very similar course to the above.

CASE V.—Mary Cregan, æt. 30, a fortnight ill, was in a state of the most ferocious delirium when admitted, and continued so till her death. Tartar emetic with opium, large doses of black drop, cold effusion, &c. &c., were tried without the least effect. She died on the second day. No examination allowed.

CASE VI.—James Brennan, æt. 40, admitted on the fourth day of fever ; prominent symptoms were epigastric tenderness, and slight diarrhœa. I ordered cupping, hydrarg. cum creta,

and pulv. doveri, with a mucilaginous mixture. Next day, prostration and other typhoid symptoms were increased : ordered liq. chlorid. sodæ, wine, vesicatorium epigastrio. He appeared to go on satisfactorily for two days, when he began to sink rapidly, and died on the fifth day after admission. No examination was allowed. This man was the ninth individual of a family who died of fever in the space of a few weeks ; several of his neighbours, who were admitted into hospital about the same time, had very severe fever, and recovered with difficulty.

Of the five fatal cases of continued fever, (synochus,) it is sufficient to state, that they all suffered from a double inflammation of the bronchial and gastro-enteric mucous membranes. In three of them, the catarrhal affection terminated in stupor, and finally in coma. In the others, the patients sank, upon the twenty-second and twenty-fourth days, under the pressure of two crises, viz. by profuse diarrhœa, and sweating. One patient, after recovering from fever, died of acute phthisis.

CASE VII.—James Sullivan, æt. 24, fair complexion, with red hair, had fever with prominent gastric affection. He was treated by cupping, small doses of hydrarg. cum cretà, afterwards a little wine, &c., and recovered. Three weeks after admission, he began to complain of a slight cough, without expectoration ; (he had had no cough during the fever, or previously.) On examining the chest, I could discover no dulness on percussion, nor any stethoscopic sign, except a generally diffused sibilant rale. I ordered six leeches to be applied to the lower portion of the trachea, and the following mixture :

Infus. Sem. Lini ℥viii.

Tartar Emetici gr. i.

Tinct Hyoscyami, ℥ii.

M. Sumr. ℥i. subinde.

This treatment, with repeated blistering, and subsequently decoction of sarsaparilla and hydriodate of potass, produced no

effect upon the disease : he became wasted and hectic ; the cough increased ; and exactly a fortnight from the day he complained of it, he became comatose, and continued so till his death.

Autopsy.—Upon opening the thorax, the lungs presented, at first view, a perfectly natural appearance ; however, on passing the finger over them, they felt rough, and this was found to be owing to the presence of an immense number of small transparent granulations ; besides these, there were a large number which were semi-transparent, like horn ; and a few opaque, and whitish in their colour : none presented any appearance of softening. They were scattered over both lungs indiscriminately ; the bronchial glands were filled with a cheesy matter ; the liver contained several small patches of a similar substance. The stomach and intestines were healthy.

The following is another case of acute phthisis.

Margaret Reilly, æt. 13, stated, on her admission, that she had had a trifling cough for a fortnight, but had been only seriously indisposed for four days. She complained of great dyspnœa ; her cough was attended with some expectoration of frothy mucus ; and on examining the chest, it presented no signs but those of simple catarrh. I ordered cupping between the shoulders, to be followed by a blister, and the infus. lini with tartar emetic, &c. Not the slightest relief was obtained by these measures ; on the contrary, the dyspnœa rapidly increased, the surface became cold and livid, and she died asphyxiated nine days after admission.

Autopsy.—Both lungs were literally crammed with small grey tubercles, not a quarter of an inch being free in any part of them ; none of these had softened. The mucous membrane of the bronchi was congested, and the tubes filled with mucus.

I had lately an opportunity of witnessing, in private practice, a most interesting case of acute phthisis from its commencement. The subject, a young man of 20, was (when apparently in perfect health) seized with sudden and copious hæmoptysis,

which recurred, at intervals, about three times in as many days. He was bled before my first visit, and I afterwards ordered cupping over the chest, leeches to the feet, small doses of hippo, frequently repeated, &c. For about four days, the pulse was hard, jerking, and rapid, ranging as high as 130 in the minute; but by the continued and steady exhibition of digitalis, it became first irregular and intermitting, and at length settled down at 52, at which number it remained for near a week. I made a careful examination of the chest every day, without detecting any sign of disease beyond a mucous rattle in the bronchial tubes, till the sixth day, when it was evident that percussion gave a dull sound over a small portion between the clavicle and mamma of the left side; here the respiratory murmur was also feeble, compared with the loud breathing of the remainder of the chest. In a day or two afterward, a similar portion was found in the posterior and inferior part of the right side; and from these two centres, the signs of tubercle, of intercurrent pneumonia, and of softening, rapidly spread over almost the entire of both lungs. Along with these, the cough became teasing and incessant, and accompanied with a profuse expectoration of thin, glairy mucus, like white of egg; his dyspnoea increased; his countenance became livid; the pulse rose to 140; profuse night sweats set in; and he became comatose, and died twelve days after the signs of tubercle were observed, and nineteen days after the first attack of hæmoptoe.

In three instances, a very troublesome form of bronchitis, supervening during convalescence, made me fear that phthisis would set in, but this result was averted by small local bleedings, counter-irritation, and sarsaparilla.

As to the treatment of fever, I have been disposed to look for its indications to the condition of the viscera, and those symptoms which may daily arise, and not to the adoption of any routine system. I believe it is better to do too little than too much, and I therefore abstain from all hazardous modes of evacuation, once the disease has become established; such I conceive

to be *bleeding, purging, and sweating*. If the type of the case be pure continued fever, I usually content myself with ordering the diaphoretic mixture of the hospital, consisting of equal parts of camphor mixture and aqua ammoniæ acetatis, with an occasional small dose of calomel, reserving all more active measures for such complications as may arise. Of these, the most frequent is the *gastric*. In more than half the cases of synochus, the prominent symptoms were those of gastrite, and the relief afforded by leeching or cupping the epigastrium was constant and remarkable. In many cases, crisis followed immediately; in all, the patients expressed themselves relieved from prostration, weight, tightness, and similar feelings. As regards prostration in particular, my experience leads me to consider leeches, indicated by its existence in the early periods of fever, as certainly as is the necessity for wine by the same symptom in its advanced stage.

In those cases in which headach and watchfulness are complained of, I am in the habit of adding opium to the diaphoretic mixture, in the proportion of twenty-four drops of the acetous tincture to eight ounces; and I have constantly found all the good effect described by Fordyce to follow this medicine, (3rd Dissertation, p. 236.)

Another very frequent and most serious complication of the continued fever of this country, is catarrh. As I have already stated, all our fatal cases of synochus suffered from it, and in many others it was with difficulty subdued. Antiphlogistic treatment seemed to have little power over it; once it was established, it ran into the secreting stage, and then the patient's only chance was derived from a liberal supply of wine and nourishment, and the exhibition of the stimulating expectorant medicines: of these, the decoction of polygala, with carbonate of ammonia, was commonly given; and in very severe cases, a bolus of carbonate of ammonia, camphor, and musk, was found to be a most efficient remedy. In some instances, especially in old persons, I found warm punch of eminent service, when

wine seemed to have lost its power. I do not substitute it for wine in any instance ; and these are the only cases in which I have seen any benefit from conjoining it ; but here it produces sudden and powerful effects when wine has failed, giving force to the cough, and causing copious expectoration, restoring the warmth and natural colour of the surface, &c.

In the *general* management of a case of severe continued fever, it is usually found necessary to change gradually from the expectant to a stimulating mode of treatment. I am in the habit of commencing the change (as soon as there is any appearance of the prostration of the advanced stage) by adding carbonate, or aromatic spirits of ammonia, to the diaphoretic mixture, and, as occasion requires, modifying this still farther by withdrawing the acetate of ammonia, and adding serpentaria, nitrous æther, &c., as may be indicated by the symptoms. As a general rule, also, I commence the exhibition of wine on the patient's first complaint of weakness, if the fever has advanced beyond the tenth day. I usually begin by ordering four ounces in the twenty-four hours, and increase this gradually, as may be necessary, afterwards withdrawing it in the same manner ; the daily allowance seldom exceeded ten ounces : in some cases it rose to sixteen, and in a few to twenty-four ounces. The total amount of wine consumed in the two years was 267 bottles.

Gastro-enterite occurred very seldom in the course of the fever. We had not in all more than twenty cases of diarrhœa, which may be attributed, I think, to several causes: 1st. The practice of leeching the epigastrium early in the disease. 2nd. Abstaining almost entirely from purgatives, and trusting to enemata for freeing the bowels ; and perhaps to my seldom giving porter as a stimulant, as I found it so apt to produce purging, that I almost entirely relinquished its use.

In the instances in which diarrhœa occurred early, it yielded to the application of leeches over the cæcum, and small doses of mercury with chalk, and Dover's powder, with mucilaginous drinks. In the more advanced period, a blister to the abdomen,

and a mixture of port wine and mist. cretæ succeeded very well. In some of the fatal cases, diarrhœa came on with sweating, exemplifying Baglivi's aphorism, "Si eodem tempore in acutis et gravibus morbis, duæ crises, sudor scilicet et alvi fluxus superveniant cum paucis levamine symptomatum, fere omnes moriuntur ut sæpe vide."—*Præcos Medica*, lib. i.

The general treatment and complications of typhoid fever differ materially from the preceding. As regards the former, I have found, in some instances, bad effects from even small bleedings, and should in most instances, if the typhoid type were fully ascertained, prefer relieving local congestions by blisters alone, or at most, by a very small number of leeches. As a routine practice, I think the solution of chloride of soda is to be preferred to any other, provided that it be given as soon as possible after the type of the fever is known, which in many cases means, of course, as soon as the fever has set in. I cannot say that I have seen such good effect from its use in more advanced stages, though I have prescribed it in a large number of such, and still do so; not, however, to the exclusion of any one of our tried and approved remedies. But I have noted forty-seven cases of typhoid fever in which I commenced its use as soon as the patient was admitted, or the type of the fever was evidenced by the appearance of petechiæ, &c., and in every instance with the best effect, this being, in many cases, the only medicine given; the dose was from ten to fifteen drops. In some of these cases, the effect of the chloride was evidenced by the change of colour, and diminution in number of the petechiæ, "taches rosées," within twenty-four hours, shewing, I think, that its action is exerted directly upon the blood, and not as a stimulant of the nervous system, as a late writer in the Dublin Journal seems (erroneously surely) to have inferred from Dr. Graves's paper on this subject.* For myself, while my limited

* Dr. Mateer's Statistics of Fever, Dub. Med. Jour. No. 28. Dr. Graves's paper, read before the British Association, August, 1835. Dub. Jour. No. 22.

experience leads me to place the fullest confidence in the *chemical* effects of this medicine, given *early*, I have not the least reason to attribute any stimulant powers, nor indeed any good effect whatever, to it in that stage of prostration and adynamia, which Dr. Graves has so graphically described, and in which he considers the chloride a remedy worthy of confidence.

Of the nervous complications of typhus, delirium, of course, occurred most frequently, presenting every variety, from the most low and drowsy muttering up to the highest pitch of delirium ferox. In the mildest forms, a blister applied to the neck, and small doses of opium, generally sufficed to remove it : but we had many cases in which these measures were quite insufficient ; in some of them wine was found to be the best soporific. In six cases I tried Dr. Graves's mode of giving opium, viz. in combination with tartar emetic. In one, a case of furious delirium, this treatment, as well as every other, failed : in the others, and in numerous cases since the period comprised in this report, it succeeded admirably. It seems best adapted to that restless kind of delirium resembling delirium tremens, in which the patient cannot be restrained from attempting to leave his bed, and walk about the ward ; when every muscle is tremulous, the eye red from want of sleep, the tongue dry, and the patient presenting that kind of spurious excitement which might induce the attendant (injudiciously, no doubt,) to order the local abstraction of blood, by leeching the temples or opening the temporal artery. I could here give reports from my note book of several cases thus treated, but that I consider it would be rendering tedious a paper already too long. In prescribing this medicine, I find it advisable to use great caution in two ways : 1st. Not to give it *after* it has produced sleep. 2nd. To follow it up by the prompt and frequent exhibition of wine, and such nourishment or cordials as the more or less advanced stage of the disease, and debility of the patient may require ; as it seems to me that there is increased risk of the patient sinking, unless timely supported after sleep thus induced.

Another most serious and fatal form of nervous complication, is convulsions. Two cases occurred, one of which has been noticed in the list of fatal cases, (Conolly.) The following short account of the other may not be uninteresting.

Catharine Finn, æt. 19, was admitted on the eighth day of maculated fever ; appeared to go on well for six days, but was then suddenly seized with convulsions : the first fit lasted fifteen minutes ; and in five hours after she had another, which was followed by much stupor. I saw her soon after the second fit ; she was then incessantly tossing, raising her hand to the head, moaning, and complained of intense pain in the head, and oppression at the præcordia : her mouth was drawn aside ; there was no farther paralysis ; pulse 140, small, and compressible ; skin hot, and dry ; bowels confined two days. I ordered ten ounces of blood to be drawn from the neck, by cupping ; to have immediately twenty grains of calomel ; and every three hours a draught, containing quarter of a grain of tartar emetic. On the following day she was much better ; she had no return of the convulsion, and recovered rapidly. The mouth, however, remained distorted for several days. The calomel purged her freely, but produced no ptyalism. Here I have little doubt the convulsion was owing to the irritation arising from accumulation of fæces in the large intestines.

Subsultus and hiccup occurred together in some severe cases. I found large doses of musk control these affections rapidly and effectually. No other remedy seems to possess the same powers.

Hysteria occurred frequently during convalescence ; it always yielded to large doses of assafœtida ; and in one case, in which it came on in a violent manner, (resembling mania,) three days after a late crisis, I found a full dose of opium, as recommended by Dr. Latham, of the greatest benefit. Soon after it was given, the patient fell asleep, and awoke perfectly well.

In the cases of intermittent, the paroxysms were arrested before quinine was given. In one in whom the disease had just commenced, an emetic succeeded. In the other, (a case of

tertian,) I was induced, from the presence of tenderness, weight, and tightness at the præcordia, to try the effect of leeching the epigastrium, and giving an opiate a few hours before the expected fit ; the consequence was, that this was retarded five hours, (it had previously come on earlier on each succeeding return.) By a perseverance in these measures, it was still farther retarded, and after three periods ceased to return. He was then put upon the use of quinine, and recovered perfectly.

Of the non-febrile affections, I shall only make a few remarks upon pneumonia. Seventeen cases occurred ; of which, five belonged to the species called typhoid pneumonia ; twelve to the ordinary, sthenic kind. Of the former, two died ; of the latter, none. The mode of treatment pursued was the following. 1st. Repeated topical bleedings by leeches, and cupping. I employ these to the exclusion of general bleeding, being convinced that every object is better answered by them. This mode is more troublesome, no doubt ; but in hospital practice, *at least*, this is of little consequence. After cupping the side, and applying leeches (from twelve to twenty-four) to the axilla, I usually give a scruple of calomel, and order this dose to be repeated after six hours ; and in four cases a third dose was given. In no instance was the severe salivation caused by these large doses, which we constantly find to follow smaller quantities ; nor was dysentery caused in any : at the same time, its effects were much more quickly produced, the mouth being frequently affected in twenty-four hours.

In the twenty-first Number of the Dublin Journal, I have published some remarks on the congestive character of typhoid pneumonia. I have since met with several cases of an indolent form of inflammation of the lung, (not typhoid,) and which were interesting, chiefly from the rapidity with which this passive congestion was resolved by tartar emetic, when mercury, pushed to salivation, had previously failed to do so.

A man was admitted into hospital upon the second day of a pneumonia, contracted by sleeping on the ground, while

“dead drunk.” For the five following days, while he had cough, with rusty sputa, and every other symptom in a marked degree, I could not by the most careful examination detect any crepitus ; the only signs being dulness on percussion, with feeble respiratory murmur over the entire side : he was bled before admission, and was afterwards cupped, and put upon calomel. This treatment having no effect upon the disease, I ordered him tartar emetic. On the day following, (the sixth,) a distinct pneumonic crepitus was audible. This continued so for several days, while every symptom gradually disappeared.

This case resembled those of typhoid pneumonia in some respects. The following is, perhaps, a fairer example of the *indolent* congestion, in which mercury either does nothing, or stops short at a certain point, at which tartar emetic begins and succeeds.

I was called, in the month of July last, to see a gentleman (in consultation with his physician) who had a month before suffered an attack of pneumonia. He had been actively treated at the outset by bleeding, blistering, and calomel, and had for some time appeared to amend gradually. For near a week, however, before I saw him, he had been sliding back into the same state as at first. He had cough, very considerable dyspnoea, bloody sputa, and complained of a feeling of weight and oppression in the right side. Here the signs were a general feebleness of respiration, amounting, in the lower portion, to almost perfect nullity, with dulness on percussion, and increased resonance of voice over the same portion, but *not a trace of crepitus* : respiration was puerile over the left lung. His mouth was still sore from calomel, so that its farther exhibition was out of the question ; and it was agreed that he should be treated by repeated application of leeches, and cupping glasses to the side, and tartar emetic, in doses of a grain every third hour. After the first dose, he had the most perfect tolerance of this medicine for a week. In three days the commencement of resolution was indicated by a fine crepitus in the

affected part : this gradually became more distinct for a few days, then was mixed with respiratory murmur, which by degrees became pure, until at the end of a fortnight resolution was perfected. I have seen other instances of this kind, and the result, upon my practice, has been, that I now uniformly commence the treatment with calomel ; but if the disease either progresses, or seems to be at a stand, still I give tartar emetic without delay, just as if no mercury had been given ; and I find the consequence to be a quicker recovery, than if one only were employed.

In comparing the relative merits of different modes of treating pneumonia, it should be borne in mind, that it is an inflammation exceedingly prone to terminate by crisis : in this case the resolution is most rapid. I have several times known a hepatization of great part of one lung to be resolved completely in from twenty-four to thirty-six hours after the commencement of a sweating crisis. It is quite obvious, that such an occurrence tells nothing for any peculiar mode of treatment which might have been employed.

Since sending the above to press, I have had an opportunity of again observing the remarkable phenomenon of tympanitic clearness of sound, on percussion, over an inflamed lung, first described by Dr. Graves,* and by him attributed to air secreted by the pleura ; and since noticed by Dr. Stokes,† who concurs in this explanation. Neither gentlemen, however, had an opportunity of proving this theory by dissection ; and having found it inapplicable to some cases which I witnessed, I offered one of my own, which, however, was thought so little probable, that different judges intimated their doubts of the *fact*. In my recent case, I was gratified by the presence of two medical friends, who verified my observations.

* Dublin Journal.

† Treatise on Diseases of the Chest.

The patient, a young woman, was admitted into hospital on the sixth day of a pneumonia, complicated with gastro-enterite, and which, on examination, was found to occupy the anterior and superior portion of the right lung, and a small portion of the inferior part of the left. She was apparently dying, but by repeated local bleedings, &c. &c., was relieved, and lingered for two days. On the day before her death, the right side, previously quite dull on percussion, was found to give a remarkably loud, clear sound, of a decidedly tympanitic character; much clearer, in fact, than the sound yielded by the other side, or by the stomach. From its exact resemblance to a case I before published, (Dublin Journal, No. 21, case of Malone,) I inferred the existence of a similar state of the lung; and an examination of the body proved the correctness of this diagnosis. The stomach was extensively inflamed; the lower portion of the left lung engorged; and the whole of the right lung solid, the red passing (in spots) into the grey hepatization. The pleuræ were adherent.

To those who have read Dr. Williams's remarks on percussion,* and who coincide with his views, the phenomenon will not seem incredible, nor perhaps the following *rationale* improbable.

I regard it as the necessary result of three conditions:

1st. Elasticity and tension of the parietes.

2nd. A homogeneous, solid state of the lung.

3rd. Air in the larger bronchial tubes.

The importance of the first condition may be illustrated by a drum head. That of the second is equally apparent, when we consider the effect of changes of media upon the vibrations of sound; and these, too, are necessarily associated in some cases of pneumonia, occupying the lung in its entire circumference; for till then, the tumefaction of the inflamed portion may take place at the expense of the uninflamed part; but when

* London Med. Gazette, January.

all becomes engaged, it must be *outwards*, and a state of tension of the parietes is the consequence.

For confirming these views, one more observation is necessary. It is, to determine, by careful measurement, before and after the occurrence of the clearness, whether any dilatation of the side takes place at the time. For this observation, typhoid cases are the best subjects, owing to the rapidity with which the entire organ becomes involved in the disease.

ART. XVI.—*Observations on the present State of Pharmacy in Germany.* By ROBERT KANE, M. D.

[Read before the King and Queen's College of Physicians in Ireland, November 18th, 1836.]

MOST of those whom I have the honour to address are aware of the remarkable difference which is found to exist in the relation of the apothecary to the physician, according as we contemplate the condition of the medical profession in the British islands, or on the Continent. On the one hand, we see him forced by circumstances, against which the will or exertions of an individual are utterly unavailing, into seeking for medical practice, an attempt in which he can be successful only by voluntarily conceding to his aristocratic rival the possession of the higher departments of professional qualification. And on the other hand, he is observed leaving the treatment of disease to those who are educated by the State expressly to that object, preparing those medicines which are deemed by the physician advisable, and employing himself in examining the qualities, composition, and method of extracting of drugs, for the purpose of improving their form, and facilitating their thereapeutical application.

I do not mean to occupy the attention of this meeting with any discussion on the comparative merits of one or the other of these arrangements; such an investigation should here be out of place, and I believe could not lead to any useful result. The

voice of society has determined that in these kingdoms apothecaries shall practise medicine ; and all that remains for the consideration of those who possess power, is to provide that they shall know how to practise well.

Notwithstanding that I avoid entering upon that question, it may not be uninteresting to the members of the profession, and even to those non-professional visitors who are present, that I should describe to them, briefly, the actual condition of the apothecaries of Germany, in order that the position which the members of that department of the profession occupy, as well in general as in strictly learned society, may be clearly understood, for unfortunately, the statistics of medicine, and of its professors, have not attracted the attention the subject merits ; and I have known many of my friends, as well physicians as apothecaries, express their opinion, that the apothecaries of France and Germany must be in a miserable state ; for my friends, having in their mind the condition of such as are in this country, were naturally led to conclude, that an apothecary who did not visit, but should live by making up prescriptions, could have but a very insufficient income. In attempting, by the following remarks, to dissipate those incorrect ideas, I shall confine them to the state of pharmacy in Germany, as in that country the pure apothecary exists in a degree of purity unknown elsewhere, the laws in France, as we shall cursorily remark, reducing the profession to a very inefficient condition. And it is fortunate for the simplicity, as well as for the brevity of the communication, that the differences between the regulations of the various German states are so trivial, that a description can be found almost equally applicable to all.

The grand distinction between the apothecary in Ireland and in Germany, is, that the latter is, in fact, an officer of the government. On his being pronounced by competent examiners properly qualified for the office, he is, on the occurrence of a vacancy, appointed to dispense medicines to the sick people ; and the government, in place of paying him a direct salary

from the public purse, enables him to pay himself, by charging for his medicines, the price being fixed by authority, and competition being prevented, inasmuch as none but apothecaries are allowed to retail drugs ; and the number of apothecaries is kept within a certain limit.

Let us consider each of these circumstances a little more in detail, and first, of what is perhaps the most important, the education of the pharmaceutic student. About the age of fourteen or fifteen, the boy undergoes an examination before the pharmaceutic commission as to his acquaintance with languages, (Greek, Latin, French,) the elementary mathematics, and general instruction, as history, geography. If he appears so advanced, that his special education can be commenced, he obtains a certificate to that purpose, and enters as lehrling or apprentice into a shop, for a term of three or four years. To almost every shop is attached a laboratory ; and we must recollect, that with a German apothecary the student spends the years of his apprenticeship not merely in making up recipes, as is the custom here, but is engaged in the nicest investigations of modern chemistry, and works under the same circumstances that brought into action the neatness and accuracy of Klaploth and of Rose, that developed the transcendant powers of discovery possessed by Liebig and by Scheele.

The student having completed the term for which he had engaged himself to the apothecary his master, passes to the university, and commences attendance on the lectures of such professors as he considers best qualified to teach him what he wants. There is no curriculum made out ; he knows the subjects on which he shall be examined ; but he is left to acquire the knowledge requisite for passing when, where, or how he chooses, it being understood that he cannot leave his own country's university without special permission. For two or three years he attends the lectures on mathematics, physics, chemistry, botany, pharmacology, zoology, mineralogy, sometimes also anatomy and physiology ; and generally works a year in the

university laboratory, particularly if the university professor be of eminence. When the student has thus spent at least five years in the acquisition of professional knowledge, he acquaints the pharmaceutic commission that he wishes to be examined, and is accordingly examined for two several days, and for more than two hours each day. The examination is rigidly confined to the physical and natural sciences, but is in these exceedingly strict. In chemistry, in botany, in the natural history of drugs, and the mode of preparing and compounding them, a degree of accurate knowledge is required, which it might prove very inconvenient to demand from many of our most admired teachers. If the candidate be approved of, he receives his license to hold a shop; his business then is, to try whether he can get one.

While the student has been thus reading for his degree in pharmacy, he generally attends the lectures of the professors to the philosophical faculty, and becomes, on the termination of his studies, Doctor in Philosophy. The majority of the leading apothecaries, whose acquaintance I was so fortunate as to make, are Doctors in Philosophy. In fact, the apothecary is as usually Doctor in Philosophy, as the physician Doctor in Medicine; the doctorate of the medicinal faculty being only a nominal degree, and quite distinct from the license to practise medicine. It is on this account, that persons who are rejected here, or in England, obtain doctorship in Germany so easily; but if they applied for a license to practise medicine, or to act as an apothecary, the result would give to them an idea of an examination completely new.

Our subject, who is now apothecary and Doctor in Philosophy, wishes to get a shop, and commence business. A shop can be obtained, however, only by one of two means, opening a new one, or purchasing one already established: both of these methods are restricted in a very remarkable manner. The government having compelled the student to a course of education requiring so considerable an outlay of time and money, is bound

to provide that he can obtain a compensating return ; and this effected in a manner very well worthy of imitation.

To each district is allowed a number of apothecaries proportional to its population, averaging, in the greater part of Germany, one apothecary to 5000 persons. The shops are, of course, principally in the towns, and this might give rise to false impressions. Thus, in Giessen, with only 8000 inhabitants, there are three apothecaries ; but the surrounding country is very densely inhabited. Round Darmstadt the population is not thick, and therefore, though with 22000 inhabitants, it has but five. Göttingen, with 10,000, has only two, the neighbourhood being but thinly covered with people. There are, however, real exceptions to this average. Thus, I was informed by Professor Dulk, that in Prussia Proper, and in Pomerania, owing to the scattered nature of the population, there is but one apothecary to 8, or 10,000. And in the Rhine-province of Prussia, the other extreme prevails, for there are not more than 2000 people to one apothecary, owing to the law *having allowed*, during the occupation of the French, an unlimited number of shops, and many of them remaining still in existence.

In general, however, there are 5000 people to one apothecary ; and no person is allowed to deprive him of them ; no retail druggists are permitted ; none but an apothecary can sell medicinal drugs. The apothecaries themselves are not allowed to compete, at least by reduction of prices. Every year a price list for drugs is published by authority ; and no apothecary is allowed to deviate from the prices contained in it, which are placed so, as to give a very high rate of profit, indeed much higher than could be obtained here.

When a district, from improvements of manufactures, or otherwise, increases in population, a corresponding number of new apothecaries' shops are opened by the government ; or what is the same thing, permission is given to so many of those candidate apothecaries whose names are first on the list, to open shops in such places as require them. This is the one way of

getting into business. The other is, that the shops in the already peopled districts, from time to time fall into the market, either from the death of their previous possessors, or from their possessors becoming legally incapable of continuing longer to trade in medicine.

In the case of a vacancy by death, the heirs of the late possessor have power to sell the concern, but the purchaser must be one of those who have obtained a license to open shop. And where the shop becomes void by the dismissal of the former occupant, he is always allowed by the government, though not entitled, to dispose of his interest in it to the best advantage, the purchaser being, as before, one of the qualified class.

The income arising from a shop being thus always respectable, and sometimes very considerable, the number of candidates, who are often taken from the most respectable bürger families, together with the comparative rarity of a situation becoming vacant, raises the price of a good concern far beyond what, to our ideas, would appear its value. Thus in towns of from 6 to 8000 inhabitants, it is usual to pay from 6 to £800 for an establishment. In larger towns, 12 or £1400 is not uncommon; but in large cities, as Berlin, Dresden, Vienna, &c., the prices become enormously high. Indeed, I was assured by a gentleman of great eminence, and on whose veracity I can implicitly rely, that a short time ago, a shop, certainly one of the first in Berlin, was sold, and 60,000 thalers, equal to £9000, paid down. I must add, however, that the establishments which bring such high prices are not mere apothecaries' shops; there is generally attached to them a factory of chemical preparations. The leading apothecaries are generally manufacturers of the nicer chemical substances, particularly the vegetable alcaloids; and the names of Merck, Winkler, Wittstock, and many others, are nearly as well known in the commercial as in the scientific world.

I mentioned that no apothecary is allowed to charge more for his drugs than the price regulated by the list; and as this

price is quite sufficiently remunerating, he is forbid in the strongest manner from attempting to increase his profits by substituting an inferior article. There are in each state officers appointed, comprising the University Professors of Chemistry and Botany, who yearly submit to strict investigation the condition of every apothecary's shop in the district. We know that there is in this country a similar examination, but it is a mere matter of form ; the results are never known, at least publicly ; and the punishment is of too ridiculous a nature ever to be inflicted. In Germany, however, it is quite a different matter : each shop is separately the subject of a report, comprising the details of the size of the shop, states of drawers, glass cases, the number of rooms, the number of pupils, the nature of the library which the apothecary possesses, of the laboratory, the age, quantity, and condition of every single medicine. I cannot trespass so upon your patience, as to attempt the description of the items of such a report, but I am fortunately enabled to present the scaffolding of one, which will give a good idea of it. The labour of making out such reports for a district is of course immense ; and my friend, Professor Wackenroder, of Jena, has had printed in a tabular form all important heads, which, thus arranged, require only to be filled up. A copy of his programme, which he kindly presented to me, I submit to the examination of the meeting, having first written under the German heads the corresponding English words, as there may be some gentlemen to whom the vernacular may be more accommodating than that foreign language. It will be seen, that there is scarcely a conceivable subject in connexion with an apothecary's laboratory and shop, which does not enter into the list, and is allowed full room for comment.

Submitted to so rigid an inspection, it need not create surprise that a shop should frequently give occasion to an unfavourable report of its condition. In that case the owner, if it be his first offence, is severely reprimanded. If he be a second time detected, a pecuniary fine is inflicted to a considerable amount, but varying in proportion to the importance of the shop, and the

more or less grave nature of the offence. On his being a third time denounced, he is suspended, his license to hold a shop is removed, and the concern becomes legally confiscated to the state ; but in fact, he always obtains permission either to make over the management, or altogether to sell his place to a person qualified to act, and of whom there are always many waiting such an opportunity : he is himself irrevocably dismissed from his vocation.

Having thus described the details of the regulations to which the apothecary in Germany is subjected, the result is capable of being conveyed in a very few words. He becomes the fellow-labourer, but not the rival, of the physician. His education is equal, though in a different path. His origin is as high ; his income is as considerable ; and he is received in general and in learned society on the same footing as any other man possessing equal property and information. If we look to any meeting of the German Association of scientific men we find an independent section for pharmacy ; and we likewise see that the great mass of the work of the chemical and botanical sections is accomplished by persons, who, if not apothecaries, were originally intended to be such, had not their talents and love of science carried them to a higher sphere of action.

ART. XVII.—*An Account of Hernia Pericardii.* By T. HART, A.B., Conservator of the Museum of the School of Medicine, Park-street.

[Read before the Medico-Chirurgical Society.]

THE above interesting, and, I believe, hitherto unnoticed pathological condition of the pericardium, presented itself in an aged female subject with general anasarca, brought into the Park-street School for dissection during the present session, of whose history I regret I have not been able to obtain any information.

On opening the thorax, with a view to demonstrate the organs situated in this region, it was found that the pleural cavity on either side was so completely obliterated by old and exten-

sive adhesions, as to render those parts totally unavailable for anatomical purposes. The anterior mediastinum was occupied by a membranous pyriform sac of considerable size, lying on and overlapping the pericardium, which was greatly distended, as well from the large quantity of fluid it contained, as from the hypertrophied condition of the heart, this organ being in a state of active aneurism. The sac contained fluid to the amount of three or four ounces, and was free and unattached in its whole extent, except at its upper and smaller extremity, where there existed a free communication between it and the pericardium, as proved by the following simple experiment:—By raising the sac off the pericardium, it was made to empty itself, the fluid passing into, and increasing the already distended condition of that sac; and again, on pressing on the pericardium from below upwards, the abnormal sac, in its turn, assumed its former dilated appearance.

The pericardium was next laid open by a longitudinal incision, and its communication with the abnormal sac brought into view: it was situated immediately at the point of reflection of the pericardium on the aorta, in one of those pouches, designated the sinuses of Haller, and presented a regular, well defined, circular orifice, freely admitting the introduction of a finger, around which the fibrous membrane of the pericardium formed a thick annulus of great strength, and then passed, considerably attenuated however, over the whole surface of the sac: the serous membrane passed into, and lined it throughout. The preparation of this very interesting case is now preserved in the Park-street Museum.

The only case analogous to the above, that I have been able to find in any of the records of pathology to which I have had access, is one mentioned by Boyer, in his *Traite de Maladies Chirurgicales*. It occurred in the practice of Dessault, and was mistaken for, and operated on by him for hydropericardium. He gave exit to five or six ounces of serum, but without affording any relief to the patient, who died next day. On opening the



body the pericardium was found to be untouched, and that the pouch, which had been mistaken for this sac, and punctured, was formed by a membrane which united the anterior edge of the lung to the pericardium. The pericardium contained only a few ounces of reddish serum, but the heart was greatly dilated, and the walls of the ventricles very thin, the organ being in a state of passive aneurism.

Although there seems a resemblance between those two cases, yet I do not think the analogy is fully borne out, for although we have in both cases the membranous sac, containing fluid, yet is there no mention in Boyer's case of any means of communication with the pericardium, which, in my opinion, constitutes a material difference ; and which, if existing, would scarcely be overlooked by that eminent operator, or the no less eminent and accurate narrator, who assisted at the autopsy.

ART. XVIII.—*Case of long-continued Vomiting, &c. &c. attended by some remarkable Circumstances.* BY CHARLES PHILIPS CROKER, M.B., M.R.I.A., President of the King and Queen's College of Physicians in Ireland.

[Read at an Evening Meeting of the College, 18th January, 1837.]

THE case of a woman named Hutchinson is well known to so many of the profession, since Dr. Graves's valuable paper in the 4th volume of the Transactions of the Association, and so deserving of attention in many points of view, that I am induced to give a short abstract of it to this meeting. The date of her admission into Sir Patrick Dun's hospital was on the 26th of March, 1820, she then complained of headach, pain in left side, nausea, and soreness of throat : these symptoms increased, with constant retchings, waterbrash, heartburn, hysterical paroxysms, and on the 15th April, 1820, food only remained a quarter of an hour on her stomach, urine straw coloured ; depositing flocculent sediment, at times bloody ; pulse quiet ; heat natural,

acid fluid discharged in quantities, of a dark coffee ground colour, with burning heat of stomach, excoriation of mouth and fauces, and obstinate costiveness. She was then salivated without any apparent benefit, and after five weeks' time, the discharges became of a brown colour; after bleeding, an hysterical paroxysm came on, succeeded by what was then supposed to be a cataleptic torpor, (probably only aggravated hysteria,) in which she lost voice, sense of vision, and recollection for a day; vomitings continued; she was pale, but not emaciated. Left the hospital at her own request, and was soon after admitted into the Hospital for Incurables; her complaint marked on the paper of recommendation, was '*scirrhus pylorus*.' In March, 1823, Dr. Graves, who, in opposition to the opinions of many, considered the case one of functional, not organic, disease, thus describes it: * "the fits of vomiting last from ten to fourteen days, recurring at intervals of about five weeks, the attacks preceded and accompanied by acute pain and tenderness in the epigastrium; what she swallows is for the most part instantly rejected, and her sufferings continue day and night without intermission. Quantity of fluid† amounting to several basins'-full daily rejected, so acrid as to excoriate throat, tongue, and fauces, together with a constant exudation of blood from the whole inner surface of the mouth. The excoriations, sourness, and acrimony of the fluid, induced Dr. Graves to examine whether it contained any free acid. Experiments detected mucus, a free acid not volatile, phosphate of lime, and one or more salts containing muriatic acid." The acid in question, Dr. Graves considered as a morbidly increased secretion, possessing active chemical properties.

Hutchinson was placed under my care in 1826, the periods

* See 4th volume of Transactions of the Association, pp. 318 to 322.

† This fluid often contained a large proportion of mucous flocculi of a dark colour, which imparted to the whole the appearance of being mixed with a blackish colouring matter.

of vomiting being then at longer intervals, and the excoriation of mouth and fauces not so severe. When well she would sit up for a time, but felt great pain if she attempted to walk or stand; she had a discharge, apparently of a muco-purulent fluid, (about four ounces,) as she stated, from the bladder, after severe pain in left lumbar region, the urine previously being much loaded with sediment.

In 1829 she had a very severe squeezing and (as she expressed it) gripping pain over the stomach, for which a seton was introduced; at first yellowish matter was discharged, but soon afterwards it was changed to an inky or dark blue fluid, foetid, offensive, and in quantity.* Whilst this fluid, which was darker than the internal secretion, passed off, the vomitings ceased, but on the seton drying up, which had been open for several months, they returned, and she could not be prevailed upon to allow a fresh drain to be established. Recourse was then had to repeated blisters over the part, cupping, leeching, or general bleeding, with injections, and calcined magnesia in cinnamon water; the carbonate of magnesia always gave intense pain if substituted. These remedies acted well for nearly three years, and the attacks were lessened to three or four in the year. Very small doses of calomel and opium were tried instead of the magnesia, which seemed to have lost its effect; a few grains caused salivation in two or three days, and the relief was remarkable and immediate. Some aperient pills and soda water (after its effervescence had subsided) then kept the bowels free, and checked the vomiting, which generally ceased or lessened as soon as they acted regularly. Her death was awfully sudden, and made an impression which will be long felt by her fellow patients: a few minutes before her end, she was asked how she was, and replied, "better than I've been this long time." Very

* Hutchinson used lint, bandages, and old rags, whilst the seton was open; which, after being stained with this fluid, were useless when washed, and fell to pieces.

soon afterwards she was found dead, having hastily swallowed the greater part of a small cup of whiskey in the meanwhile, which she had procured clandestinely !!*

The dissection was performed by Dr. Benson, (to whom I am much indebted for the valuable assistance he afforded me,) at 8 o'clock, A. M. on the 26th December. Hutchinson died on the 25th, at 2 P. M.

Dissection.—There was an inch thick of adipose tissue over abdominal muscles; increased vascularity of omentum. The small intestines, on being uncovered, more vascular than usual. The right margin of omentum was adhering to the ascending colon. Part of the ilium very much contracted, not of much greater diameter than vermiform process; part at intervals considerably dilated, flaccid, and presenting a dark red appearance. Corpus fimbriatum and ovaries very vascular, left more than the right. A small quantity of viscid fluid of a reddish hue spread over the intestines. Spleen softer than usual, very easily broken down; heart healthy; old adhesions general over left lung, structure of it sound; right lung healthy; liver healthy, presenting on its surface stellated appearances; pancreas sound; kidneys healthy.

The mucous membrane of stomach presented marks of intense inflammation, the cardiac orifice especially, which was of a deep red colour; pyloric orifice quite sound. Duodenum highly inflamed, its mucous membrane red and rough. At commencement of jejunum a quantity of air was observed in the submucous cellular tissue, rendering it quite emphysematous, and raising five or six of the valvulæ conniventes with very prominent rings: each ring consisted of numerous cells, and looked not unlike the bead or row of bubbles which form on a slightly viscid fluid. There was no air in the intervals between the valvulæ conniventes.

* She had been long suspected of drinking, but, except on one occasion, previously had escaped detection.

A quantity of creamy mucus adhered to the mucous membrane of duodenum and jejunum, bloody effusion under the mucous membrane in thin spots, which were of a darker colour, and in some situations bloody mucus; contracted part healthy, which exceeded in length the dilated and dark-red spots, easily torn, but not at all gangrenous. Ascending and descending colon highly inflamed, transverse arch not so much so, bladder and rectum healthy. There was no sign of ulceration in any part of the intestines, nor any thing in the smell or look of them resembling gangrene.

The foregoing case presents some points of peculiar interest which appear to be well deserving attention: in the first place, I have already alluded to the acid secretion from the stomach, as described by Dr. Graves, so unusual in quantity and quality; in the next place, the secretion which attended the action of the seton, dark, inky, and foetid; in the third place, the emphysema.

With respect to the inky fluid, the following note from Dr. Apjohn, whose knowledge of chemistry needs no comment from me, will throw some light on its probable origin:—

“Sir Benj. Brodie has been in the habit of drawing the attention of his hospital pupils to a blue deposit on bandages applied to parts in a state of suppuration; and Mr. Labatt, from whom I have had this information, tells me that he represented the matter as Prussian blue. Mr. Labatt, however, having brought to me some years ago a bit of lint, with a blue stain of the kind under consideration, I found, upon chemical examination, that it was not Prussian blue. From some experiments that I made a considerable time since on pus, I found, that when treated with muriatic acid, it frequently assumed a purple, and sometimes a bluish colour. This fact is interesting, in connexion with Hutchinson's case, the characteristic feature of whose disease was the redundant secretion of those acids which are active in digestion. I need not tell you that muriatic acid is the chief; and that it does not appear to me irrational to conclude, that this

agent was developed in inordinate quantity at the seton, in virtue of a general morbid condition ; and the inky matter of which you speak, was the result of the action of this acid on the purulent matter.

“ Very truly yours,

“ JAMES APJOHN.”

As to the emphysema, I have not been able to learn from reading or conversation, that any case exactly similar has been observed. There is no other preparation of the kind, I have been informed.* The air was secreted, I have no doubt, by the vessels of the inflamed part.

Emphysema is often met with in various parts, in consequence of putrefaction after death ; but in this case putrefaction could not have set in, as the dissection was made eighteen hours after death, on, perhaps, the coldest day in the year ; nor was there any gangrene to occasion it during life, nor any ulcer to transmit it from the intestinal canal. Jules Cloquet met with emphysema of the stomach and omenta, in a case where no decomposition could have set in, but the parts are not preserved. Baillie saw emphysema joined with anasarca of the general cellular tissue ; and it is a common occurrence to see emphysema arise from violent efforts, accidents, &c. &c. *during life*, and after profuse hemorrhage air is also often discovered in several situations ; but in none of them was the submucous tissue of the intestine engaged ; nor in any of them could it be so certainly concluded that the air was a secretion from blood vessels in an inflamed state. I may also mention, that the inflamed and granular appearance of the duodenal mucous membrane would lead us to expect that jaundice should have existed during life, but I am not aware that such was observed ; there were no symptoms

* The preparation was beautifully put up by Mr. Labatt, and has since, at my request, been presented to the Museum of the Royal College of Surgeons, through my friend Doctor Benson, to whom I am greatly indebted for the discovery of the emphysema, and valuable assistance he afforded me.

of it, at least, for the last ten years. Perhaps, it is as well to mention, that there was very little emaciation, if any, till within the two last years, since which time the arms and legs became thin, and the flesh on them flabby.

ART. XIX.—*Pathological Contributions*.—No. II. By
ALEXANDER JOHN HANNAY, M.D., Professor of Physic,
Anderson's University, &c. &c.

ON TRAUMATIC DESTRUCTION OF THE BRAIN'S SURFACE, RESEMBLING ULCERATION.

IN my first number I alluded to an appearance of the surface of the brain, produced by violent injuries as in falls from a considerable height—which looks somewhat like destruction by ulceration of that texture. I have no recollection of meeting with any notice of this condition, either oral or recorded. The appearance I am to describe occurs chiefly in cases of fracture of the cranium; but I once witnessed it in a case where the bone was not broken. When a clerk in the Royal Infirmary of Edinburgh, I was present at the inspection of a man, who died of concussion after a few days; and on opening the cranium, and removing a thin layer of blood, the abraded surface of the convolutions was plainly seen. I was in that instance struck with the similarity to the appearances which ulceration might be supposed to present—indeed, it was on that occasion a matter of keen debate, whether the loss of the brain's surface was the effect of mechanical violence, or produced by ulceration, as there was no fracture. I never forgot the circumstances of that case; and they have been vividly recalled to my mind since, by a few instances, the subject of the following observations, which, I trust, will not prove uninteresting, and may serve to draw attention to this point—which last is, after all, the chief object of my communication.

The appearance now adverted to, has varied in my cases

from the area of half-a-crown to two or three times that extent. The margins are irregular and shaggy; they consist of the torn or abraded pia mater and arachnoid. The surface of the convolutions is abraded and rubbed off as it were. My fancy leads me to compare it to the abrasion, which would be produced by holding a pretty firm brain to a grind-stone in brisk rotation. The abraded part is covered with a layer of blood, which likewise commonly extends over a considerable portion of the surface of the same hemisphere. This layer of blood has a very loose hold of the abraded surface, as well as of the arachnoid over which it extends. It is removed by very gentle force—even the fall of water from a sponge effects it—and then the convolutions are presented, deprived of their membranous coverings, and their more projecting point superficially abraded—the surface being now cerebral texture.

If concussion, without fracture, be complicated, as I am sure it sometimes is, with the destruction in question, such a lesion must exert a manifest influence over the issue of the case—and I should suppose over the symptoms, though I am not prepared to point out any by which the complication I allude to can be ascertained. I feel convinced, however, that we should carefully look into the matter, and establish, if possible, some way of recognizing its existence.

CASE II.—A man, by a fall from a considerable height, fractured his skull; after a severe ordeal and most active treatment, he almost recovered. Two months after the accident, he fell a victim to cholera morbus. On inspecting his head, the surface of the convolutions, at one part, presented an appearance, which the gentleman who opened his head regarded as ulceration. Its area was that of a crown piece. It was like the abrasion, which holding the surface of the convolutions of a brain to a grind-stone in rotation would produce.* It was rough and shaggy;

* I hope the profession will pardon the homeliness of the illustration; its accuracy is my apology.

the surrounding margin was very ill defined and indistinct ; not, I thought, like ulceration—as I had seen it before from injury. There was an apparent attempt at separation, and some clotted material appeared, which, I believe, was blood.

Remarks.—It may be supposed that destruction so extensive would always be fatal. The history of injuries of the brain affords us many striking illustrations of how much lesion that organ is susceptible, and what portions of it may be removed without death ensuing ; I do not, therefore, suppose that I am taking too great liberty in offering the speculation, that even abrasions of the kind now under consideration may be recovered from. They must be very variable in point of depth and extent ; some may be very limited, and it is not unreasonable to believe, that if a man recover after a portion of brain, the size of a small hen's egg, has been protruded and removed by the scalpel, so an abrasion of much less of it may be sustained, and yet the patient recover.

In the case I have narrated, the appearances were not such as characterize ulceration of the cerebral texture ; they were obviously the result of the violence previously inflicted. An attempt, though a very feeble one, had been set up to repair the breach. It is not improbable, that had not cholera carried off the patient, the cure might have been accomplished. Indeed the cure (which is sometimes effected by natural processes) of extensive laceration of the brain, the consequence of apoplectic effusion, *almost* proves the truth of this surmise.*

CASE III.—A man, above thirty years of age, of full habit, threw himself from a window of the second story ; he was taken up alive, but quite insensible, with a cut on the left superciliary ridge down to the bone ; inferior maxilla broken in four places ;

* For proofs of this reparation in brain, we may turn to Morgagni, where several are recorded, Epist. II. 16. Bricheteau, Rochoux, and Riolié give illustrative cases not only of blood effused being absorbed, but of the laceration of brain being united by granulation ; as also does M. Serres. Med. Repos. Feb. 1819.

the superior maxilla and malar bones smashed to pieces ; blood flowing profusely from right ear ; the right patella broken into four pieces ; a wound on the left patella ; none of the long bones were broken ; and there was not a bruise on his body ; he rallied a little ; he was bled ; but, in less than six hours from the time of his fall, he died.

Sectio Cadaveris.—The fracture in the base of the skull was tremendous. The violence had broken the petrous portion of the temporal bone (on the right side) ; continued on through that bone ; traversed the sphenoid exactly through the *sella turcica*, and onwards to the *crista galli*. On sawing off the skull-cap, the right side of the skull before was quite moveable ; a thin layer of blood covered a considerable extent of the arachnoid—indeed, over the whole surface of the right hemisphere. On the lateral aspect of the posterior lobe of the right hemisphere, a portion, about the size of two half-crowns, of a stellated or irregular figure, presented the appearance of an ulcer, or loss of substance of the convolutions, or, as if part of the substance had been eaten away, but not very deeply—not so deeply as to entirely destroy the outline of the convolutions. Their more projecting parts were abraded, or, as it were, rubbed off in the manner described in the preceding case. The part which looked like as if it had been superficially ulcerated was covered with a very thin layer of blood, almost entirely coagulated. This layer was removed by letting a stream of water, squeezed out of a sponge, fall on the part. The convolutions then appeared as if their projecting surface had been rubbed off. The surface of the abraded convolutions appeared shaggy and soft looking, and the rugged outline of the pia mater and arachnoid was visible at the margins of the abrasion. I have an excellent rough oil-coloured delineation of these appearances, by Mr. James Harvie, surgeon, of this city. I send it to you, for your inspection, and to give effect to my verbal description.

Remarks.—At the inspection (Drs. Mostyn and Batersby of the 83rd Regiment were present, as also one or two others) it

was agitated whether this might not really be ulceration, and not the result of violence ; and the circumstance of the man having been subject to occasional slight derangement, induced by intemperance, and to epileptic paroxysms, gave some countenance to the idea, that there might be serious organic affection existing previous to the accident ; in short, that the appearance we saw was ulceration indeed, and had occasioned his mental complaints and epileptic paroxysms.

It appeared to me, on inspecting the parts, that their condition was such as would result from the violent shock having broken down the brain's substance, and mixed it with the effused blood. The extreme violence with which the head had struck the ground rendered the brain's substance so soft at this part, as to admit the mixture and injection of the blood into it—of the blood shed from its own vessels. On the removal of the blood the superficial loss of substance became obvious, and indeed was in part accomplished, the surface appearing ragged and uneven: surely that force which could smash so many bones could also *addle* the brain in the degree presented.

This case clearly shews the characters which distinguish the traumatic lesion in question, from ulceration :—1st. The infliction of violence on the cranium, preceding and causing death. 2dly. The presence of a layer of blood. 3dly. The difference in the appearances of this abraded and nearly plane surface, from the excavated hollow or depressed aspect, and the other characters of ulceration in this texture, for the most prominent of which I beg to refer to my former communication. These circumstances I am of opinion will serve to mark precisely enough the lesion of violence from that produced by a vital process, and prevent that doubt which in more than one case I have witnessed actually arose.

ART. XX.—*Report of St. John's Fever and Lock Hospitals, Limerick.* By WILLIAM J. GEARY, M. D., Physician to the City Infirmary and Magdalen Asylum, and Assistant Do. to the Hospitals.

IT is not our object in the following paper to plead the importance to society of institutions embracing the concentration of contagious disease. The time may be considered as having passed when it was deemed necessary to urge their value on the public, and although the point may be looked upon as unsettled, “whether fever, as well as the plague and cholera, are contagious diseases?” still every prudent reflection forces us to adopt, as it were by a natural instinctive law, the most effective means of precaution. Under the influence of such feelings, measures of safety were instituted by us so early as the year 1780, and the gradual increase of fever in this city and neighbourhood has excited, from time to time, a proportionate solicitude on the part of the benevolent friends of the sick poor.

The first efforts at establishing relief for fever patients, at the period alluded to, yielded accommodation for only three; and the humble shed which afforded them protection has long since given place to the spacious buildings which at present constitute ST. JOHN'S FEVER AND LOCK HOSPITALS.

It was a subject of general regret when the epidemic of 1817-18 broke out, that our accommodation was not sufficiently extensive to admit all who then claimed assistance. The want of room obliged the committee to erect sheds for convalescent purposes, along the south-east wall and garden, and also to solicit from government the temporary use of the square barracks which were then unoccupied. The extent of that epidemic and its attendant miseries, cannot be easily forgotten, and great as were the numbers treated in those united asylums, amounting in 1817 alone to 3153, it becomes our painful task to state, that those admitted in 1836 were no fewer than 3269; exceed-

ing the average annual admissions since the regular opening of the house in 1794, by 2443, and the extreme number during the maximum year referred to, by 116.

When the hospital year for 1836 closed, our attention was directed with more than ordinary anxiety to the state of the registry for that period. The admissions were considerable; the varieties of fever complicated and serious; and when we saw that 3269 patients had been treated for the year, the extensive arrangements which were necessary for the accommodation of such a number, afforded the conviction that the arrest of contagious disease had become the most essential ingredient in any measure contemplating charitable relief. To provide against the evils attendant on so serious a spread of disease, the committee, under the guidance of their zealous treasurer, P. Gabbett, Esq., have been most persevering in their endeavours. To their exertions we are indebted for the ample accommodation which the hospital extends since the erection of the convalescent wards in 1829; we have now full resources for 218 patients, and 211 have been under treatment at one time during the year.

This increase of fever was not peculiar to our district; the accounts circulated through the press, notice its unusual extent and severity in Dublin, Cork, Waterford, Belfast, Ennis, &c. and from the various communications with which we have been favoured, it appears that contagious fever, though not so thoroughly diffused as in 1817-1818, was as great in certain districts.

During the present as well as former periods, when fever had prevailed extensively, the mortality and type of the disease do not appear to bear any regular proportion to the number attacked. If we examine the term from 1817 to 1819, we shall find that the deaths were to the recoveries as 1 in $13\frac{1}{2}$ —1- $13\frac{1}{2}$, and 1 in $18\frac{1}{2}$ for each year respectively; while the numbers admitted for these periods were 1275, 2787, 3153; the disease appearing to assume a milder form as it continued to advance.

The mortality during the present epidemic, which may be dated from 1835, was for that year 1 in $12\frac{1}{2}$, and for 1836 1 in $13\frac{1}{2}$; the admissions for the former year being 1484, for the latter 3227.

It is obvious that institutions capable of extending such relief claim from us more than ordinary notice. The importance of our own has been impressed upon us by a long experience of its utility, and we think it will be worth while, and particularly at this period, to preface the present report with a succinct detail of the circumstances under which the fever hospital was in the first instance established, and the advantages it has subsequently produced: with these we shall embody brief views of the leading features which disease assumed during the past year, and the curative measures which were adopted.

The earlier part of this design will be best accomplished by referring to the first and only special report that exists.

In 1820, at the instance of the committee, my father, Dr. John Geary, undertook to arrange a summary statement* of the institution from its foundation; a task, in the execution of which so many difficulties arose, that its ultimate completion, with the requisite accuracy, became nearly impracticable. His early and intimate connexion with the hospital, however, enabled him to accomplish that, which the accidentally injured state of its first records would have rendered it impossible for any other person to accomplish. When the report was examined by the board, its importance, not alone as a record of the house, but as exhibiting in a full and satisfactory degree the progress of fever in this district, induced them to have it printed.

From this report we learn that about 1780, through the influence of the benevolent Lady Harstonge, a small guard-house at St. John's, capable of receiving two or three beds,

* Report of St. John's Fever and Lock Hospitals, Limerick, by John Geary, M. D., Senior Physician, &c. &c. &c.—1820.

was procured, an association formed, and funds created, which were munificently increased by donations from her family to the extent of £170, followed by large annual subscriptions, and fever having considerably increased in the subsequent year, an act of parliament was obtained with the view of insuring a permanent revenue. In 1785 it was determined to pull down the guard-house, and erect a building suitable for the reception of fever patients, and in the mean time the inmates were removed to a temporary establishment near the river at Newtown-Pery.

The present hospital was opened in 1787. Our object in alluding to the earlier existence of the infirmary, is sufficiently attained by these extracts; from them it appears that an asylum was prepared and in full operation for the relief of fever cases in this city, at least seventeen years before opening the splendid house of recovery which ornaments the metropolis; and we are much in error if ours was not the first hospital of its kind which was formed in these countries. From the registry of 1794 to the time of the report in 1820 we find the following return.

Admitted.	Cured.	Died.	Average Mortality.
10,954	10,336	618	1 in 17½

The hospital consists of eight wards, which may be considered exempt from the objections usually chargeable on the construction of similar institutions, being neither over-spacious, nor too limited, each having a fire-place, and the advantage of free and thorough ventilation; they are of equal extent, one floor being appropriated to males, and the upper to females, each ward having twelve beds, and the entire accommodation equal to ninety-six, independently of the convalescent wards, and the lock-department, which (latter) as a matter of expediency, was converted to fever purposes last year. We are managed by an annually elected committee, three physicians, one surgeon, and a resident apothecary; the building being advantageously situated on an eminence, with convenient yards and offices to

the north, and extensive gardens peculiarly appropriate for airing grounds to the south. Being intended for the relief of the suffering poor, the only passport necessary for admission is disease. It seemed essential to say thus much of the nature and extent of an institution, which does not appear to have been much before the public hitherto, and we have done so at present, with the view of being enabled to dispense with similar matter in future notices, which we propose furnishing at the close of each year. It seems remarkable that the admissions, which under the most urgent circumstances have not exceeded 400 previous to the epidemic of 1817, should never have been so low as 500 during any one year since that period; the average admission for twenty years antecedent being 180, while those for a similar subsequent term amount to 1542. To what causes are we to attribute this very disproportionate increase? Are poverty in food and raiment, mental depression, and exposure to wet and cold its source? If these were in themselves sufficient, we should be led to expect, that in proportion to the public exigency we should find fever existing. It is needless to observe, that this relative condition is not in strict accordance with our experience. The due share which they manifest in the production of disease cannot be withheld from these exciting causes, but we are inclined, from very extensive opportunities of noticing of the sick-poor, to class them as secondary in some degree to the enervating effects of spirituous and fermented liquors, in which they but too commonly indulge to a pernicious extent. To this we may add to the total abandonment by them of any effort at cleanliness, as well as their great anxiety to keep the sick at home, to share alike their affections and wants, thus favouring the propagation of disease through contagion, under circumstances the most auspicious for its development. Are we warranted in supposing that the atmospheric constitution has undergone any alteration during the epidemic, which fits it for exercising a more effective febrile influence on the human frame? It is at least worthy of note, that the great and steady existence

which fever latterly manifests, dates from that period, and should we be asked, whether the constitution of the Irish people is adapted in any peculiar degree to the reception of contagious miasm, we profess ourselves unacquainted with any information which could lead to such a conclusion. Indeed the interesting author of a "Twelve Months' Campaign with the British Legion," in describing the fatal effects of the epidemic typhus, which attacked that body at Vittoria in January, 1836, furnishes abundant evidence to the contrary; he states, "that the English and Scotch suffered extremely, while the Irish Brigade, composed of the 7th, 9th, and 10th, regiments, enjoyed a perfect immunity;" and adds, "had the whole been composed of Irish, instead of losing nearly 1000 men at Vittoria, we might not have lost 100. In spite of all their hardships, the severity of the winter, the badness of rations, and total want of pay, the Irish lived, thrived, and grew fat, as if in the midst of clover, such are *the advantages of misery and starvation at home.*" And again, "the Irish Brigade suffered little or nothing from disease, although it was not better off for provisions or quarters than the rest of the force."

On reviewing the following table, it will be found that the most important period since the report of 1820, was that from 1825 to 1827 inclusive.

TABLE

*Shewing the Numbers admitted, and the Mortality during each Year :
from 1816 to 1836 ; Fever and Lock Patients being separately
classified.*

Year.	FEVER CASES.			LOCK CASES.			Total.
	Admitted.	Cured.	Died.	Admitted.	Cured.	Died.	
1817	1275	1177	98	„	„	„	1275
1818	2787	2581	206	„	„	„	2787
1819	3153	2983	170	„	„	„	3153
1820	1045	1020	25	119	119	„	1164
1821	824	754	70	120	119	1	944
1822	1469	1380	89	176	176	„	1645
1823	1157	1105	52	211	210	1	1368
1824	1439	1363	76	219	214	5	1658
1825	1731	1620	111	192	191	1	1923
1826	2631	2501	130	152	150	2	2783
1827	2781	2644	137	199	198	1	2980
1828	854	817	37	197	192	5	1051
1829	506	483	23	183	179	4	689
1830	806	772	34	188	185	3	994
1821	1015	950	65	202	201	1	1217
1832	1028	971	57	191	191	„	1219
1833	824	782	42	206	203	3	1030
1834	906	851	55	215	213	2	1121
1835	1484	1363	121	187	185	2	1671
1836	3227	2992	235	42	42	„	3269
Total.	30942	29109	1833	2999	2968	31	33941

The usual exciting causes were then in active operation, and the admissions became so urgent towards the close of 1826, that the governors of the Fever Hospital and City Dispensary decided on appointing two visiting physicians to the latter, with the view of attending the sick-poor in their own houses, and thus, by checking disease at its onset, diminish the demands on the hospital. The writer of this report was one of those selected, and filled that office till 1832, when he resigned. During that period an accurate registry was kept, in which were inserted the names and number in family of the sick, the disease under which they laboured, and the event. From all that can be learned, this appears to have been the only period, during which any correct estimate can be formed of the number attacked with fever within the cities and liberties. With the view of shewing this more satisfactorily we have constructed the following table, which exhibits the number of fever cases visited at their own houses, compared with those admitted into the fever hospital from 6th January, 1827, to 5th January, 1832, with their average and general mortality.

Year.	HOSPITAL RETURN.			DISPENSARY RETURN.			Total.
	Admitted.	Died.	Average Mortality.	Attended.	Died.	Average Mortality.	
1827	2781	137	1 in 20	2800	80	1 in 35	5581
1828	854	37	1 in 23	960	22	1 in 39	1714
1829	506	23	1 in 22	640	18	1 in 35	1146
1830	806	34	1 in 23½	910	25	1 in 36	1716
1831	1015	65	1 in 15½	920	31	1 in 29	1935
Total.	5962	296	1 in 20	6130	176	1 in 34	12092

Assuming the population at 63,310 (which is the mean of the census taken in 1821 and 1834) we shall find that the proportionate liability to fever in this district during 1827, after de-

ducting one-sixth for county patients, and four per cent. for relapsed cases, admitted into the Fever Hospital for that year was 1 in $12\frac{1}{2}$; and for the average of five years 1 in $29\frac{1}{2}$: this of course is independent of the cases occurring in private practice, as well as those who may have been attacked with fever in the Liberties, and been unwilling to go into Hospital. This susceptibility to a given disease, we acknowledge to have come upon rather by surprise, and should be somewhat incredulous on the point, if the documents from which these facts are deduced were not compiled by ourselves. Such an amount of steady and progressive disease almost tempts to the conclusion that Fever has selected Ireland for its nursery, and that the Irish endemics may yet become as proverbial as yellow fever in the tropics, intermittents in the marshy districts of Holland, or malaria in Italy. We shall briefly sketch the district, which has become the theatre of such a visitation, and the extent to which poverty prevails in it. Indeed it must be obvious, that without such information, our observations must prove very defective to those who are unacquainted with our particular position. The city of Limerick may be divided into the old and new towns divided by a branch of the Shannon, which sets off about one mile to the north, and after passing round the Abbey flows into the main river at the custom house. It is built on a limestone stratum, and occupies about 640 acres. The surrounding country to the north, east, and south, is flat, and covered to a considerable extent during the winter season by water, in consequence of the overflowing of some considerable inland rivers which empty themselves into the Shannon at these points, as well as the latter river forcing the banks at the King's Island. The old town, which includes the parishes of St. Mary, Nicholas, and Munchin, has been for some time in a state of progressive and rapid decay. The wealthier inhabitants have forsaken these districts for the new town, and the houses, which are lofty and closely piled together, being suffered to run into a condition approaching to ruin, are at once the abode of misery and filth. Scarcely

a dwelling that has not a small confined yard to the rear, which is invariably used for a receptacle for putrescent manure, and the stairs are the deposits of all kinds of nuisance. Two and frequently three families occupy a single room, and the persons of the inmates, partaking of the most deplorable uncleanness, present a wretched picture of the neglected state of our medical police. This quarter and the parish of St. John are principally occupied by the numerous poor of the city. It is here, as in the decayed Liberties of Dublin—that the indigent room-keeper, the ruined artisan, the unemployed labourers, and the ejected county cottier, with their famishing families, retreat. It is among these scenes, in the discharge of our professional duties, that it has been often our lot to witness the anguished parent—the only support of a numerous family—stretched on a few pounds of rotten straw, as a substitute for a bed, with the few rags which constituted their daily covering sprinkled over them for clothing, and nought to allay their common wants but water. It is here we have often wished to introduce those over-cautious legislators, to whose prejudices against a legal provision for the poor we must attribute a great proportion of the moral degradation by which we see the lower orders encompassed.

The new town, or parish of St. Michael, is built with a due regard to the health and comfort of the inhabitants. To it was added the populous district of St. John in the dispensary arrangement. Of the latter we will only observe, that every remark which has been made with regard to the parish of St. Mary applies with strict faithfulness. While acting as visiting physician to the dispensary, we were constantly struck with the immense pauper population which existed in the city. We have here classed them in their respective districts, and are thus enabled to see the proportionate population and disease in each parish.

TABLE

Shewing the Number of Fever Cases visited at their own Houses, as well as those taken into Hospital, for each District, from 1827 to 1832 ; with the Amount of parochial Population, and the Number of Poor, as nearly as can be ascertained, in each.

Parish.	St. Nicholas and St. Mary.	St. John and St. Laurence.	St. Munchin.	St. Michael.
Population, . . .	14629	15667	4071	16226
Number of Poor, .	7000	6400	940	2500
Admitted during five years to Fever Hos- pital,	1675	1920	596	839
Attended at their own houses during five years,	1695	1946	710	954

N. B. The dispensary return does not include any of the parishes in the Liberties, and are computed by doubling the registry which I kept myself, not having my colleagues by me. Under the head "Number of poor" are those who would require the aid, if a poor law existed ; and all the tables which we furnish are free from fractional calculations.

On considering the facts stated here, we need hardly say, however warmly the principle of voluntary relief may be advanced by the opponents of poor laws, that individual charity, be it ever so extensive, must prove wholly inadequate to the alleviation of poverty and disease, such as we have represented it. In truth, the sentence pronounced by the poor law commissioners on the condition of the able bodied labourers, viz. "that they are out of employment full thirty weeks in the year," may be applied with more than equal justice to the con-

dition of those wretched sufferers in this city; and those parishes to which we have so often alluded, may be looked upon as vast alms-houses, whose inmates are enduring unspeakable privations, craving the benevolence of the humane and charitable. We cannot boast as yet of many manufactories; among those which exist, an extensive glue mill in the Abbey is the most unfavourable to health. During the warm weather the effluvia emanating from the putrid animal matter collected in this establishment poisons the surrounding atmosphere. In its vicinity we have particularly observed that dysentery of a formidable character abounded, and we can affirm that we never knew Exchange-lane free from that disease during our connexion with the dispensary. This district was at one period so productive of purpura, both with and without fever, that Dr. Geary in his report says: "I think it right here to state a particular species of fever of which some cases occurred in the hospital, and as being attended with a particular disposition to putrefaction, and for the most part communicative, deserves a place here, I mean purpura. *It is a complaint almost indigenous to the Abbey.*"

We have already noticed the accumulation of manure to the rear of the houses; it is a general custom among the poor; they collect all the abomination of the streets, and have it locked up until the gardening season opens, when they sell it at a very high price to the farmers, and this constitutes a very principal source of their livelihood. There were certain houses in both the parishes of St. Mary and St. John, which we have never found free from fever. They were all situated in the immediate vicinity of large depots of manure. In fact, wherever animal and vegetable matter in a state of putrescent fermentation are discovered, more particularly in crowded cities, where the habits and circumstances of the people lead to enervation, there, with a too fatal certainty, we may expect to find fever existing. We shall here introduce a tabular summary of the relief which the hospital has afforded to fever patients indepen-

dent of the numerous lock admissions from 1794 to 1836 inclusive, and with it we shall bring to a close all that seems to us essential to be known before more immediately entering on the report for the past year.

Year.	Admitted.	Cured.	Died.	Average Mortality.
From 1794 to 1819,	10,954	10,336	618	1 in $17\frac{1}{2}$
From 1820 to 1836,	22,682	21,338	1,344	1 in 16
Total.	33,636	31,674	1,962	1 in 17

Dr. Marsh, with his usual talent for observation, has directed our attention to the “origin and latent period of fever,” in a very instructive paper, which will be found in the fourth volume of the Dublin Hospital Reports. The views there taken of the primary and appreciable introduction of febrile poison into the human system, are entirely in accordance with many facts which have occurred to us. Are we then to consider fever as contagious? We shall furnish all the information which we have practically acquired on the subject, and it must be admitted that the direct “Interrogation of Nature” is the only true means of dispelling the mists by which this very important and interesting subject is enveloped.

(To be continued.)

ART. XXI.—*Observations on the Treatment of various Diseases.* By ROBERT J. GRAVES, M.D., M.R.I.A., King's Professor of the Institutes of Medicine, one of the Physicians to the Meath Hospital, &c. &c.

(Continued from Vol. VI. p. 49.)

PUERPERAL MANIA, WITH DISSECTION.

A SOLDIER's wife, aged about twenty-one, and apparently of sound constitution, was admitted into the clinical ward of Sir P. Dun's Hospital on the 6th of March. Eight days before admission she had been delivered of a seven months' child, and it being necessary for her to leave the barrack next day, she got up, drank a glass of whiskey, and walked out of the barrack, without any assistance. This imprudent exposure, combined with distress, want of sufficient care, and grief at leaving her husband, operated most unfavourably on her nervous system, and she began to exhibit indications of puerperal mania on the sixth day after her confinement. For this she was bled; and, to add to her misfortunes, the vein opened again during her struggles, and a large quantity of blood was lost, the precise amount of which we were not able to ascertain. It was also stated, that she had taken purgative medicines, but what effect they had we could not learn.

When admitted, her face was somewhat flushed, her eyes wild, pupils natural, pulse 125, small, and rather weak; the lochia were suppressed, as also the secretion of milk; and she was in a state of extreme agitation, accompanied by mental depression, and constant delirium. Shortly after admission she became so violent and unmanageable, that it was found necessary to apply the restraint of the strait waistcoat. On the 7th, we found her raving as before, and in a state of constant nervous agitation. Her delirium was of a melancholy and desponding character; her imagination was filled with forebodings of future misery, and she expressed in abrupt and thrilling sentences the emotions of a soul abandoned to religious despair. Notwithstanding

ing her incessant agitation, raving, and sleeplessness, there was no suffusion of the eyes. Her look, it is true, was wild, and, at times, maniacal ; but there was no injection of the conjunctiva, and the sclerotic exhibited a pearly whiteness. The pupils were also natural. There was, moreover, no unusual turgescence or abnormal pulsation of the carotid and temporal arteries, and the temperature of the scalp did not exceed the ordinary standard.

But then, her cheeks were greatly flushed. Did this indicate congestion of the brain ? I think it did not. The flushing of the cheeks was the result of excitement, nervous agitation, and incessant jactitation. When the mind is strongly disturbed by overwrought feelings, and when the body is at the same time in a constant state of active motion, it is quite natural that the cheek should be flushed, and that that the flushing should vary considerably, increasing, diminishing, or disappearing according as the intensity of the mental delusions and maniacal agitation varied. Diseases affecting the mind present this manifest difficulty ; they often react upon the body so as to derange many of the corporeal functions, and great care must consequently be taken to distinguish such changes from those that are antecedent to and dependent on the mental affection.

Again, this young woman was constantly breaking out into perspirations ; indeed until a few hours before her death, her body was continually bedewed with moisture. Here we have another instance of the power of strong mental impressions in affecting the secretion of the skin. The fearful ideas that overwhelmed her mind, aided by her incessant agitation and attempts to escape from restraint, caused her to break out into perspirations. Besides, irregular perspirations of this kind, without any previous exaltation of animal temperature to account for them, are often characteristic of a profound lesion of the nervous system, or of the vital activity of the whole economy. Illustrations of this are frequently observed in cases of hydrophobia, delirium tremens, cholera, phthisis, syphilitic and mercurial cachexy, and many cases of obstinate rheumatic or

arthritic affections. In addition to these symptoms, this young woman had another of very considerable importance, namely, diminution of the urinary secretion; she had passed water once on the 6th, but, with this exception, had discharged none before the period of our mid-day visit on the 7th.

We found the patient, on the 7th, in a state of excitement, raving, agitated, sleepless, and so unmanageable as to require the restraint of the strait waistcoat. From the analogy which existed between her symptoms and those of delirium tremens, I was induced to try tartar emetic; this it was necessary to mix with her drink, as she refused all medicine. In addition to this, I had her head shaved, and covered with cloths dipped in tepid vinegar and water.

On the 8th, we found that she had taken six grains of tartar emetic during the last twenty-four hours, and had vomited four times. In the course of the day, she became extremely violent, burst her bonds, and ran through the wards, to the great terror of the patients. She was however seized by Mr. Lloyd, and brought back to bed, when she became much more tranquil. The tartar emetic was continued in the form of enema, and in this way she took four grains more, when its use was omitted, and she began to take the acetate of morphia in doses of a quarter of a grain, every second hour, until sleep was produced. I should have observed, that she had not slept since her admission, except once for about six hours. On visiting her on the 9th, we found her asleep, and learned that she had taken three grains of the acetate of morphia. We therefore ordered the morphia to be discontinued, and finding, on inquiry from the nurse, that her bowels had not been opened satisfactorily since her admission, we prescribed a purgative mixture, composed of infusion of senna, sulphate of magnesia, electuary of scammony, and tincture of jalap. One-half of this was administered with some difficulty by the mouth, but proving inoperative, the other half was given in a few hours afterwards. This also having produced no effect, a purgative enema was given,

but proved equally inefficacious. We then gave her two drops of croton oil, which succeeded in overcoming the obstinacy of the bowels, and she had four copious motions. On the 10th the report was, that she had passed the night without sleep, and in a state of great agitation and violence, but became much calmer towards morning, and so quiet that the strait waistcoat was removed. Her pulse was 120, her tongue rather dry, very little flushing of the face; skin bedewed with perspiration as before. The mental wandering continued, but she was much more manageable, and put out her tongue when desired. She was ordered a light nutritious diet, and to have half a grain of the acetate of morphia, every fourth hour. This was continued until it produced the desired effect, and she slept for about four hours during the night. She awoke at an early hour, in a state of excessive agitation, became violently delirious, and attempted to get out of bed. After some time, she became more quiet; but it was evident, from the collapse of her features, and the sinking of her pulse, that it was the collapse of exhaustion, and not the calm of relief. She lay for some time with her eyes half closed, her face pale but tranquil, and her pulse fast ebbing; she had no symptoms of convulsions or coma, and died tranquilly, and without a struggle, at half past six.

We were fortunate enough to obtain an inspection of the body six hours after death, before decomposition could have produced any alteration of texture or appearance, even in the most delicate structures of the body. The brain and uterus were the parts to which our attention was chiefly directed.

The most careful examination could discover in the brain no phenomena in the remotest degree capable of explaining the occurrence of delirium or death. There was no thickening of the membranes, no subarachnoid effusion, no unusual vascularity of the superficial or central parts, no abnormal quantity of fluid in the ventricles, no softening, hardening, or degeneration of structure; every thing was unaltered and healthy. We also examined the uterus. It was of the size that organ ordinarily is at the same

period after parturition, that is to say, about half as large as the fist, and of a perfectly healthy appearance. Its structure was also natural, and it exhibited nothing worthy of remark in its interior. The rest of the abdominal viscera were healthy ; the chest was not examined.

Dissections of persons who have died of puerperal mania are of rare occurrence, and it is seldom we have so favourable an opportunity of inspecting the body. The results obtained militate strongly against the opinion, that delirium, especially when violent and uninterrupted, always depends on changes in the brain, capable of being appreciated after death.

LOSS OF VISION PRODUCED BY EFFUSION OF BLOOD INTO THE VITREOUS HUMOUR.

Doctor Boxwell of Abbeyleix has furnished me with the particulars of a remarkable case of purpura hæmorrhagica, in the course of which an effusion of blood took place into both eyes, thus completely destroying vision. The blood was extravasated, in the first instance, somewhere behind the iris in the right eye. Now, as the pupil had a blood-red appearance when the impairment of vision commenced, and as that time there was no discoloration or muddiness in the anterior chamber, we may conclude that the first hæmorrhage was into the structure of the vitreous humour. Had blood been effused into the posterior chamber, in such quantity as to impart to the pupil a blood-red appearance, it must have tinged strongly the fluid in the anterior chamber. Vision became worse and worse in the right eye, and was extinguished in about five hours, at which time the aqueous humour was evidently mixed with blood. Next day the other eye became similarly affected, and the young lady continued totally blind until her death, which took place in about a week afterwards, under circumstances so extraordinary, that it may be useful briefly to recapitulate the leading features of her case, as communicated by Dr. Boxwell. The disease commenced with severe pain in the hip-joint, increased on the slightest motion.

At first she appeared to be relieved by baths, calomel, and James's powders, followed by purgatives ; but as the pain returned with increased violence, it was found necessary to apply twelve leeches over the hip-joint. Dr. Boxwell returned in two days to see his patient, a young lady about thirteen years of age, and found that the bleeding from the leech-bites had continued in spite of all the efforts of her attendants, ever since he left her. She was pale, and exhibited the appearance of a person exhausted by bleeding. Her pulse, however, was not feeble ; it was quick and bounding, just as it is in many cases after copious loss of blood.

From that period her complaint assumed the character of purpura, attended with discharge of bloody urine. No other hæmorrhage took place, except that already described into the eye-balls. The bleeding from the leech-bites had completely removed the pain in the hip-joint, but she now began to complain of intense pain in the head, accompanied with throbbing, nausea, and total loss of appetite. The headach became every day more excruciating, and the discharge of blood from the bladder greater. The most judicious treatment was ineffectually employed : no medicine, no local application diminished the agony she suffered from pain in the head ; and she died on the fourteenth day from the commencement of her illness, exhausted by pain and loss of blood, having retained her intellects to the last, and without the least sign of paralysis, coma, convulsions, or any other symptom denoting effusion of blood within the cranium. The duration of the disease, from its commencement to its fatal termination, was only fourteen days.

ALBUMINOUS URINE.

With some exceptions, English pathologists now seem agreed in considering albuminous urine in dropsy as the result of certain changes to which the structure of the kidney is liable. In my published lectures I have enumerated the reasons which have prevented me from subscribing to this opinion, and have

mentioned a striking case where the urine was permanently and highly albuminous, and yet the kidneys were in every respect healthy. Indeed it is very difficult to conceive how alterations in the structure of the renal tissue, so different as (what is supposed to be) the first stage of Bright's disease, and the last, can have precisely the same effects on the composition of the urine. The maxim *quod nimium probat nil probat*, may be here applied: it is asserted that a coagulable state of the urine is always accompanied by an evident alteration in the renal tissue. Thus in recent cases the coagulable urine is said to be produced by engorgement of the kidneys, or *by an inflammatory disposition** in those organs, while the dissections of Osborne, Gregory, Bright, and others, prove, by hundreds of examples, that this state of the urine in chronic dropsy is connected with a peculiar alteration of the renal tissue, generally called after that distinguished physician, Doctor Bright. Now, as the engorged or inflamed kidney exhibits every thing connected with structural alteration in the very reverse state from that which accompanies Bright's kidney, it is difficult to conceive how changes of structures so different from each other can give rise to one and the same effect. In the former, the kidney is unnaturally distended, and gorged with red blood, whereas in the latter the structural disease consists in hypertrophy of the white parts and proportional atrophy of the red. If then, in dropsy, we find that albuminous urine occurs, sometimes accompanying the one state of kidney, and sometimes the other, is it not more rational to suppose, that this alteration in the urine arises from the operation of some general cause, rather than from structural derangements so very different. For my own part, I am persuaded that albuminous urine may coincide with widely different states of the kidney; and that like saccharine urine, it depends not so much on changes in the immediate organ of secretion, as in the general system of

* British and Foreign Medical Review. April 1837, p. 309.

nutrition and sanguification. In saccharine diabetes the urine, at certain stages of increase or decrease of the disease, is frequently highly loaded either with albumen or animal matter closely allied to it, and yet no two states of kidney can differ more from each other than does Bright's kidney from the kidney of diabetes mellitus. In dropsy, a disease in which so great a tendency to the secretion of albuminous fluids exists, that the action of secreting such a fluid is often suddenly assumed by various tissues. There seems no necessity for supposing that structural alteration in the kidneys must precede the secretion of albuminous urine; the cellular, serous, and similar tissues secrete hydropical fluids in abundance, and if this power of separating albuminous matter from the blood be accomplished with such facility by tissues so simple, there can be little doubt that a similar power may be easily superadded to the common functions of the kidney.

A FACT FOR THE PHRENOLOGISTS.

I do not know whether the following fact, taken from one of the February numbers of the Boston Medical Journal, may tend to deprive the cerebellum of some portion of its phrenological importance; neither can I guess whether the occurrence of priapism in this case (where the injury affected the spinal cord so far below the brain) may force the cultivators of phrenological science to locate at least some of their organs in extra-cranial situations.

At present the various organs that administer to our intellects, propensities, and passions, are so crowded within the skull, and are so rapidly increasing in number from year to year, that some plan must be speedily adopted to relieve the pressure from within. To avert the evil consequences of having the organs too closely packed, it may be prudent to transplant some to other parts of the nervous system. Happily nature encourages our plan, and affords abundant proofs, that the most inconveniently capacious of these organs, and that which predominates over its fellows, so as almost to monopolize the cerebellum, may be transferred

without loss of vigour to the spinal marrow. That the propensity which Gall and his followers have laboured to insulate and confine within the cerebellum, extends to the spinal marrow, may indeed be proved not only by the fact I am about to cite, but by numerous cases brought every day under the observation of practical surgeons.

“ J. N. (of Shrewsbury), aged about fifty, a stout, muscular man, weighing 220 lbs., on the 16th of November, 1830, was riding on the fore end of his ox cart, loaded with a quantity of slabs, when his team took fright, and ran violently. As they were turning round a corner in the road, in attempting to jump from the cart, his foot slipped, he lost his balance, and fell. He stated that he came with his shoulders and back of the neck upon the ground; the cart striking him on the hip, doubled him over, and at the same moment capsized, and left part of the load resting on him. Several persons happened to be near, who immediately removed the timber that confined him in this appalling situation, and he was soon able to speak. The accident happened at six o'clock in the evening, and about one hundred rods from his house, to which he was immediately conveyed, and I saw him in twenty or thirty minutes after. He then had no power of motion, nor sensation in any part below the middle of the breast; could move the arms a little, though there was inability to direct their movements to any particular point. Respiration was somewhat embarrassed, performed principally by the diaphragm; possessed his reason perfectly; spoke but little, but tolerably distinct; pulse regular, rather feeble. At twenty minutes past eight, he suddenly began to fail; pulse sunk; slight spasm of the arms; breathing after a while became stertorous, and he expired at nine o'clock. Ten minutes before death, pulse became hard, full, and slow.

“ Seventeenth, at one o'clock, P. M., examined the spine at the place of injury. Externally, large contusion on back of neck at top of the shoulders. On cutting down to the spine at this point, a large quantity of extravasated blood flowed from the

spinal canal and the parts about the wound. Found the spinous and transverse processes of the sixth cervical vertebra separated from the body of the bone, and broken into several pieces. The body of the vertebra was dislocated forward, so far as to crush the spinal marrow over the posterior edge of the body of the vertebra below. It is remembered that the patient referred to his back, some inches below the injury, as the seat of all his sufferings; *and also that there was priapism.*—*Boston Journal.*

ODOUR OF MUSK EXHALED FROM THE SKIN.

A gentleman of athletic frame and powerful constitution, but immoderately addicted to the abuse of ardent spirits, became subject to violent attacks of delirium tremens. The delirium and sleeplessness usually lasted many days, and he required very large doses of opium before relief was obtained. I saw this case in many of the paroxysms in consultation with Mr. Rumley and Mr. Colles. We were often obliged to persevere in the exhibition of opium long after that medicine had induced the greatest possible degree of contraction in the pupils, long after they were in fact reduced to the size of pin-holes, and by this perseverance, and by means of increasing and not diminishing the dose of the drug we procured profound and long-continued sleep, followed by a subsidence of all the symptoms. This bold exhibition of large and repeated doses of opium was advised by Mr. Rumley under circumstances which would have deterred me from this course, for I must confess, that when the pupils become contracted after considerable doses of opium, and that the sleeplessness and delirium continue, I never feel disposed to urge the remedy further, for I fear cerebral congestion and effusion. Mr. Rumley, however, having attended this patient in all his attacks of delirium tremens, had thoroughly studied the effects of opium on him, and had ascertained the safety of continuing its use in this particular case, under circumstances usually believed decisive of the necessity of discontinuing this medicine.

When this patient had been a day or two seized with a fit of *delirium tremens*, his pulse became very rapid and his skin moist, and the perspiration which soon flowed abundantly was accompanied by the exhalation of an odour exactly similar to that of musk. The smell of musk became so strong in a day or two, that it could be perceived in every apartment, and even in the hall, although the patient slept in the chamber above the drawing-room, and lived in a large and well-ventilated house. Doctor Elliotson has referred to several cases somewhat similar in his work on Physiology. I may remark that the odour of musk gradually disappeared with the other symptoms of the attack.

SPASM OF THE BRONCHIAL TUBES.

The investigations of Reisseisen and other anatomists have confirmed the old opinion revived by Laennec, that the bronchi are capable of spasmodic constriction. The researches of Rigot at the veterinary school of Alfort have confirmed the results obtained in the human subject, for Rigot has announced the existence of a muscular membrane or coat beneath the mucous membrane of the bronchial tubes, and has traced to that coat the greater part of the nervous branches derived from the bronchial plexus. "A similar distribution of the pulmonary nerves well explains, according to M. Rigot, the phenomena of suffocation observed after division of the pneumogastric nerves, and which are evidently nothing more than paralysis of the motor portion of the lung. In pursuing these researches the Professor has often observed an obliteration of many of the divisions of the pulmonary artery caused by grey fibrinous concretions, similar to those which are found in old aneurisms. The existence of these fibrinous depôts always coincides with certain organic changes in the lungs, as induration, tubercles, grey hepatization, or simply an emphysematous state of the lungs."

This latter observation, if confirmed, is very important, and

proves that when any portion of the lung discharges its respiratory function imperfectly or languidly, the quantity of blood *brought to or attracted by that part* necessarily diminishes; and at length, if the impediment to respiration be complete, no more blood arrives at it through the channel of the pulmonary artery, and *the corresponding branch of that artery is consequently filled with coagulum.*

In many diseases, of which asthma is the best known example, the bronchial tubes are liable to sudden narrowing of their calibre. In pertussis the fit of whooping and coughing is often preceded for several minutes by an accelerated respiration and a sudden and very remarkable increase of bronchial rales within every part of the chest, owing no doubt to bronchial constriction coming on, for some minutes before the spasm has extended to the trachea and larynx.

I lately attended, along with Mr. Pakenham, a boy who laboured under frequent and violent convulsions produced by acute hydrocephalus. The moment the convulsions of the voluntary muscles supervened, an universal and loud wheezing took place in the chest, and continued as long the fit lasted, and then ceased. This association between convulsions of the voluntary muscles and spasm of the bronchi is perhaps not so rare as is generally imagined.

CHOREA.

In general chorea is a disease yielding to treatment with sufficient ease, but examples occur now and then requiring great assiduity and patience, and some which even baffle all attempts at cure. The best treatise I know on this subject is contained in the article Chorea in Copland's Dictionary of Practical Medicine. The following case was seen by Mr. Mulock, Mr. Crampton, Doctor Marsh, and myself, and exhibits in a striking point of view the difficulties the physician has to contend with in the treatment of the aggravated form of chorea, as well as the inefficiency of some of the best reputed medicines and the

striking utility of others. The young lady was attacked on the seventeenth of April with the first symptoms of chorea, affecting one side of the body only. In the course of twenty-four hours, the peculiar motions of chorea had extended to all her limbs, and became hourly worse. For the first few days of her illness she could walk although unsteadily, but she soon lost this power altogether, so strong and uncontrollable did the involuntary motions of her legs become. At the same time she became incapable of raising her arms and hands, as they were perpetually jerked about in every direction. Indeed the rapidity with which the disease progressed was very remarkable, for in the course of a week from its first beginning it had assumed a degree of intensity and violence, which had no parallel in the experience either of the Surgeon-General, Mr. Colles, or Doctor Marsh. When at its height the disease presented a truly appalling spectacle; every part of the system of voluntary muscles seemed to be affected; all the directing influence of volition had ceased, and the muscles every where were agitated by sudden violent and jerking motions, which constantly and forcibly changed the position of her limbs, throwing her into attitudes the most varied, and succeeding each other with extraordinary rapidity. Her arms were indeed thrown about with such force that it became necessary to cover with blankets and soft padding the sides of the sofa on which she lay, and in spite of this and other precautions her limbs were soon covered with bruises. Her state was truly pitiable; one or two persons were constantly engaged in preventing her from rolling off the couch; now and then she sat up suddenly, made an involuntary effort to assume the erect position, and as suddenly flung herself down; meanwhile her limbs were flexed, extended, thrown backwards and forwards with unceasing rapidity. At one moment a hand would be struck against her head, and at the next be passed behind the back. It was almost impossible to keep her covered with clothes, for the constant motions of the limbs often wisped the sheets, blankets, and quilts up together, and

not unfrequently even stripped her of her stockings. At the height of her illness the motions of her limbs and body were quite extraordinary, and appeared to be such as could be only performed by a person whose very bones were pliant and flexible. She soon lost all power of articulation, and during a period of three weeks she was not able to put out her tongue, or speak a single word. The muscles of deglutition became engaged in the disease, but the muscular system of respiration, circulation, and digestion, was unaffected throughout the disease; hence her breathing and pulse were natural, and her digestion and alvine evacuations regular. A continuance of muscular exertion, so violent although involuntary, could not fail rapidly to exhaust the system, and accordingly she lost her flesh daily, and before the middle of May, that is in four weeks, her emaciation had become extreme. Her countenance was sunk, her pulse weak, the whole surface of the body was excoriated from the friction unavoidably produced by the constant movement of both trunk and extremities. This rendered all attempts to act on the disease through the medium of the skin quite hopeless. Leeches, plasters, blisters, liniments, could not be applied; it was even impossible to administer a lavement. During sleep, and during sleep only, had she respite from the muscular labours; then she lay quiet. The liquor of the muriate of morphia proved very serviceable indeed in procuring sleep, and did not appear to produce headach, constipation, or any other inconvenience. I should, however, remark, that her intellect was unaffected, and her head quite free from pain except for a few days previously to the occurrence of epistaxis in the beginning of the attack. Her appetite continued good throughout. The following brief sketch of this case has been given me by Mr. Mulock of Charlemont-street, who was unceasing in his attentions to our patient.

“S. W., aged 15, was affected with influenza in the beginning of April, and relieved in a few days; she continued well until the seventeenth, when she had a slight hysteric illness, with

tossing of the left hand and arm : Dr. Graves saw her on the morning of the eighteenth ; the disease was then manifestly an attack of chorea ; the menses had appeared about two months previously, but not afterwards : Dr. Graves ordered aloetic pills combined with calomel, at night, and a brisk saline aperient in the morning. She appeared to amend for a few days in her general health, but the tossing of the limbs, &c. increased ; he then directed aloetic mixture with iron ; I should mention that the pulse was natural, and tongue not loaded. After taking these draughts for two days the countenance flushed, and she had a slight hæmorrhage from the nose ; Dr. G. left off the draughts, and ordered vegetable jellies, without either meat or wine. Mr. Crampton saw her at this time in consultation ; he said the only case he had latterly, was relieved by spirits of turpentine, given in a decoction of aloes ; she took two of those draughts, but they produced so much excitement, we were obliged to give them up ; the tongue became also swollen, and there was a great difficulty in swallowing, indeed a person was obliged to eat before her to enable her by imitation to do so. Both sides were now affected ; liquids passed out of the side of the mouth ; it was impossible to give medicine either by enema or in pills. Dr. Colles was called in consultation ; he ordered carbonate of iron and rhubarb in an electuary ; it could not be taken, though often tried. Dr. Graves then considered that medicine ordered in the form of a lozenge could be swallowed ; he thought the liquor arsenicalis in that form would be useful ; this was tried for two days and appeared to be of service, with twenty-five drops of the solution of muriate of morphia, and four drops of the essence of peppermint on sugar at night ; the only time jactitation of the limbs, &c. stopped, was when sleep was procured.

“ The prescription for the lozenges was :

℞. Liquor Arsenicalis gutts. xviii.

Pulv. Gum. Arab. ʒss.

Sacchari Albi gr. xxv.

M. et fiat secundum artem massa.

Divide in partes vi. æquales, sumat unam ter in die.

“ The disease now appeared to be hysteria combined with chorea, as there was constant sobbing, heaving of the chest, and other hysteric symptoms, along with incessant tossing of the head, limbs, &c., twisting of the eyes and mouth. She continued the liquor arsenicalis with muriate of morphia for three days; she had some rest, but when not under the influence of the morphia the disease appeared unaltered. Dr. Marsh saw her in consultation on the 16th of May, and ordered quinine with extract of stramonium, and tepid salt water shower baths three times a day: these were obliged to be given while lying on a hair mattress, and to continue the anodyne at night; after taking $1\frac{1}{2}$ grains of stramonium, dilatation of the pupils took place, and it was thought prudent to leave off the medicine for some hours; the tossing of the limbs, &c. and difficulty of swallowing gradually abated.

“ The form for the stramonium lozenges was:

℞ Sulph. Quinæ gr. viii.

Ext. Stramonii gr. $1\frac{1}{4}$.

Pulv. Glycyrrhizæ gr. xv.

Theriacæ q. s.

Ft. massa, et divide in partes quatuor. Sumat unam quater in die.

“ The entire skin, previous to using the baths, on the shoulders, sides, and cheeks, &c., was in such a state of irritation from the constant friction, as to require to be constantly washed with eau de Cologne.

“ 19th. The uneasiness was much lessened, the bath was of much service; her diet from the fourteenth was generous, as emaciation was extreme from the trifling sleep and constant motion; she has now taken the lozenges for eight days, and continues to improve; she can also take the bath sitting in an oval tub, which has been lined with wool and covered over with coarse cloth to prevent her hurting herself: the stramonium after the second day did not appear to affect the pupils.”

In this case the failure of all remedies until we tried the shower bath and the combination of sulphate of quinine and

extract of stramonium, recommended by Dr. Marsh, was not more remarkable than the rapid improvement which took place after the new plan had been adopted, indeed at the time I speak of, I considered her case as nearly hopeless, and believed that a few days would close the scene of her sufferings.

The shower bath was used at first warm, and then tepid. Its application was very difficult; the plan pursued was to place the patient on a large mattress covered with a blanket, where she was held by an assistant destined unavoidably to enjoy the bath along with her; other servants, mounted on chairs, then poured the water from several large watering pots, held high, on the patient beneath; when this was done she was taken into another room, well dried, and then covered.

This operation, however troublesome, was perseveringly repeated three times daily; as she improved, the application of the shower bath was attended with less flooding of the apartment, as she could then be placed in a large stuffed tub to receive the effusion. From a careful observation of the effect of the remedies, I am inclined to attribute the improvement more to the shower bath than to the sulphate of quinine or stramonium, although the effects of the latter on the system must have been powerful, for in a few hours after commencing its use, her pupils were dilated to a maximum. Be this as it may, this combination of remedies produced a change the most astonishing, and she regained flesh, colour, strength, and command of her muscles, so rapidly, that on the 2nd of June, the day on which I write, but a slight vestige of the complaint remains.

The powerful effects of water whether hot, tepid, or cold, poured on the naked skin, may be illustrated by many facts, but it is not easy to determine whether those effects are owing to the impression made on the sensation of the cutaneous nerves by the temperature of the fluid, or to the force with which it is applied to the surface. Both probably concur in making affusion of water so effectual a remedy; by means of cold

affusion, hysterical fits and convulsive disease are frequently checked, and persons narcotized by opium or prussic acid are most speedily awakened. Water applied to the surface, whether in a continued and forcible stream, as a *douche*, or in the usual manner by means of the shower bath, frequently produces much benefit in diseases, general and local, acute and chronic. The case I have just related affords an additional example of the beneficial employment of this remedy.

ART. XXII.—*An Inquiry into the Possibility of transplanting the Cornea, with the view of relieving Blindness (hitherto deemed incurable) caused by several Diseases of that Structure.* By S. L. L. BIGGER, M.B., L.R.C.S.I.

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ON leaving this country four years ago, Dr. Bigger proposed to himself several subjects for investigation, with a determination of bringing to bear upon them all the information he might be able to collect during his stay in the various scientific capitals of Europe. Among these subjects, that which chiefly engaged his attention was the melancholy condition to which persons are reduced, who labour under hopeless and irremediable blindness, from what has been termed incurable staphyloma. In pursuance of this intention, his first object was to inquire what foreign surgeons had accomplished with the view of repairing this defect; and on making a careful inquiry, he found that in France, Italy, or Egypt, (a country noted for the prevalence of destructive ophthalmia,) the idea of reparation was regarded as visionary, and nothing beyond mere palliation had ever been attempted. In Germany alone, the project which had occupied Dr. Bigger had been frequently considered, namely, that of *excising the morbid cornea, and replacing it by a healthy structure, taken from some of the inferior animals.*

The first place in which mention is made of this operation,

is in an inaugural dissertation by Moesner, published at Tübingen in 1823. From the results of his experiments, he was led to the conclusion, that, as the cornea would not unite with the surface from which it was cut, it would not *a fortiori* unite with any other. In 1824 F. Reisinger replaced the cornea, which he had removed from the eye of an animal, by another, and closed the lids by a ligature; adhesion took place; and in twenty days one half of it had become clear. The details of this operation are to be found in the Bavarian Annals for 1824, Tom. I. Stuck 1. The possibility of accomplishing this desirable object was, on the other hand, strongly denied in 1827, by Schön, in the 23rd volume of Rust's Magazin. It appears, however, that he did not institute a single experiment. Drolshagen of Berlin attempted the operation twice, without success, in 1834; the transplanted cornea united only partially, and became more or less shrivelled and opaque; as also happened in the experiments of Himly and Stilling. It failed, too, in the hands of Dieffenbach, a surgeon justly celebrated for his ingenuity and success in various kinds of reparative operations. He was of opinion that the foreign cornea would not adhere, or if it united, that it would become so turbid and opaque as to be wholly unserviceable. His experiments, and those of Himly and Stilling, are to be found in the first volume of Ammon's *Zeitschrift für Ophthalmologie*.

Dissatisfied with such conflicting opinions, Dr. Bigger determined to put the matter to the test of experiment, and accordingly commenced a series of investigations on the subject, to which he was still further encouraged by meeting with an inaugural thesis, published by Wilhelm Thomé, a candidate for the degree of Doctor, in the Friedrich Wilhelm University on the Rhine, in which eight experiments are detailed, all followed by very considerable success.* Dr. Bigger gave a full trial to the

* The first time Dr. Bigger had an opportunity of trying this experiment on one of the inferior animals, occurred in 1835, at a period when he was a prisoner

plan proposed by Thomé, but does not approve of it. The knife employed by Thomé, which is spear-shaped and double-edged, does not answer the purpose for which it is intended, namely, that of cutting off the cornea with a single incision, both edges of the instrument acting simultaneously. It is moreover likely, from its shape, to endanger the iris; and is even inferior to the knife used by Beer in the operation for the extraction of the cataract.

This, and several other knives of his own invention, were tried by Dr. Bigger, but ultimately rejected as deficient in some important requisite. At last by adopting a new modification of the operation, Dr. Bigger succeeded in rendering the removal of the cornea a safe operation, and easily practicable by a steady and dexterous hand. Having fixed with a ligature the upper eyelid of the animal from which the cornea is to be taken, he introduces Beer's cataract knife (holding it horizontally, and at first directing it a little backwards, so as to insure its passing through all the layers of the cornea,) with its edge turned upwards, into that part of the cornea situated about a line or more from its most inferior junction with the sclerotic, and about the same distance external to the mesial line of the eye. He then pushes on the knife for the space of one or two lines, inclining the handle, so that the point of the knife may be brought forward, and caused to pierce the cornea again, at a distance as small as possible from the point of entrance. The knife should now be pushed on, when it will make as large a section as may be required, which being turned down, is to be cut off with a

with a Nomadic tribe of Arabs, about twelve or fourteen days' journey from Grand Cairo. The subject of the operation was a pet gazelle, who had lost one eye from inflammation, and the power of seeing with the other, from a wound of the cornea. The cornea was taken from another animal of the same species, brought in wounded, but not quite dead; adhesion took place, and ten days after the operation the animal gave unequivocal signs of vision, the upper part of the transplanted cornea remaining perfectly transparent.

pair of scissors. The eyelids are then to be closed, to prevent the escape of the crystalline lens and vitreous humour. The excised cornea should be placed on a slip of cork, and the curved needles, carrying very fine ligatures, (two, three, or four in number,) should be passed through the cornea and the piece of cork. The latter, which has been chiefly used as a support to enable the operator to pass the needles through the tough layers of the cornea, should then be broken off, and the cut surfaces of the cornea should be kept moistened with some of the secretion from the eye. The surgeon then proceeds to perform the same operation on the eye to which the cornea is intended to be transplanted. Having done this, and closed the lids for a few moments, until the spasmodic action of the muscles of the eye diminishes, the operator proceeds to adapt the cornea to its new situation, and for this purpose, inserts the point of his needle carefully between the margin of the now prolapsed iris and the remains of the cornea, and pressing externally with the nail of the other forefinger against the point of the needle, so as to make it pass through the cornea without dragging or injuring the eye, draws out the needle. To accomplish the latter object, Dr. Bigger was often obliged to use a small forceps, and in this case, the thumb and finger nails of the other hand must be pressed closely and firmly against the cornea on either side of the needle, to obviate any injurious disturbance or dragging of the eye. The ligatures should then be carefully tied, and the ends cut off. Dr. Bigger has found two ligatures to answer the purpose quite as well as four. Finally, the operator clears away any lymph or blood which may have collected on the eye, and concludes the operation by smearing the eyelids with a little spermaceti ointment.

In operating upon animals, the chief difficulty arises from the struggles of the animal; even the slightest motion perils the integrity of the iris. This accident frequently occurred in Dr. Bigger's experiment, and he acknowledges, that if the operation were brought to bear on the human subject, the iris would be

in very great danger, in cases where opaque albugo intervened between the edge of the knife and the operator. Besides slight motion on the part of the patient, or any unsteadiness on the part of the surgeon, might cause either injury of the iris, or the slipping out of the knife, so that the cornea could not be separated with a single stroke. In the latter case Dr. Bigger thinks it would be highly injudicious to proceed with the operation.

The mode which Dr. Bigger has employed for securing small animals, such as marmots, rabbits, &c., is to enclose the animal in a box, with a hole just large enough to let the head pass through. A much better way, however, particularly in the case of small animals, is to swathe the animal in long towels, which are to be brought rather tightly around the neck, to prevent the escape of the fore feet. The animal is then to be secured by an assistant holding it against his breast, with the croup and hind legs under his arm, whilst, with both hands, he can fix the head by the ears and chin.

In November, 1835, shortly after his return from Egypt, Dr. Bigger operated on two rabbits by a mutual transplantation. In these operations three ligatures of fine silk were employed. In both the lens escaped, and the iris was injured. There was great inflammation and tumefaction of the conjunctiva, so as to render it difficult to find the ligatures, which were removed forty-eight hours after the operation. At this period the cornea was adherent at the points where the ligatures had been applied, leaving small lacunæ on either side, filled with white coagulated lymph. In these experiments Dr. Bigger secured the eyelids with a ligature, with a view of preventing the animal from scratching or rubbing the eye, but found that this only added to the inflammation by confining the discharge ; and he afterwards ascertained that the precaution was wholly unnecessary, as the pain caused by touching the inflamed parts is sufficient to prevent the animal from using any injurious violence.

Eighteen days after the operation, the implanted cornea appeared whitish and opaque, and large red vessels could be seen

passing from it to the adjacent cornea. The iris was considerably inflamed and irregular, and the aqueous humour was turbid, and in quantity beyond the normal amount. On the twenty-fifth day the inflammation was considerably diminished; the cornea was much contracted, a circumstance which occurred in many other cases; but the opacity had cleared away at many points, particularly at the superior portion of the cornea. On the thirtieth day violent inflammation occurred in one of the rabbits, without any evident cause, and terminated in a copious deposition of puriform lymph in the anterior chamber. At the end of ten days it subsided, and Dr. Bigger found that the eye in this rabbit was not at all injured thereby, but was rather clearer than that of the other, which had gone on improving. In both there were some spots of the cornea perfectly clear; and it was plain, from the motions of the animals, that they could see, although evidently not distinctly. In running to take food presented to them, they seemed to be incapable of accurately calculating the distance of the object, a defect which Dr. Bigger is inclined to attribute to the loss of the lens. The lymphous deposition in the anterior chamber of the eye which had suffered from secondary inflammation, became in a great measure absorbed; and what remained floated about loosely, and did not interfere with vision. On the fiftieth day, the cornea was still farther contracted, but perfectly pellucid in the centre, and surrounded by the appearance of an irregular ring, which marked the situation of the cicatrix. No further improvement taking place, the animals were killed on the sixtieth day.

Dr. Bigger's next experiment consisted in removing the corneæ from six rabbits. Two of them were immediately replaced on the eyes from which they had been taken, the other four were mutually transposed. In two the iris escaped injury, and these were the cases which succeeded best; in those to which their own corneæ had been restored, the iris became adherent; and in one, the pupillary opening became perfectly closed, so as to require an operation for artificial pupil. In

one of these cases the success was very remarkable ; vision was much more perfect, and there was less contraction of the implanted cornea. In all, however, the animals continued to enjoy more or less power of vision.

About this period, Dr. Bigger became acquainted with the method pursued by Wilhelm Thomé, and performed with his knife, an operation on a pointer dog which had an opacity of the cornea from injury. The implanted cornea in this case was taken from the eye of a wolf. Two ligatures only could be applied in consequence of the struggles of the animal, and two days afterwards the dog made his escape to the woods. From this period, nothing was heard of him, until at the end of three months, when he returned in a half famished state, but with a very remarkable power of vision in the eye which had been operated on ; a triangular cicatrix, about one-fourth of the size of the original piece, was almost all that remained, and very little of this cicatrix intruded upon the axis of vision. It appeared as if the transplanted part in contracting had drawn the clear cornea of the side forward, so that although the operation had only a partial success, it furnished a useful hint with respect to the general success of the undertaking : viz. the advantage derived from removing no more of the diseased cornea than is absolutely necessary, as the sound portion which remains may enact a very useful and important part in the reparative process. In this case, the iris was attached to the inferior angle of the cicatrix. Dr. Bigger has observed this in many of his experiments, and attributes it to the predominance of inflammation in the inferior part of the eye, a fact which he has noticed on numerous occasions.

On his return to Dublin, Dr. Bigger commenced his experiments anew ; of these, he has now performed eighteen. The subjects of the first and last, two rabbits, were presented before an evening meeting of the King and Queen's College of Physicians, on the 18th of May last. They were examined with great interest by the members and visitors present, and the

degree of vision which one of them evidently possessed, reflects the highest credit on the ingenuity, patience, and manual dexterity of the scientific operator. The results of these eighteen experiments were : in ten, the iris was injured ; in eleven, the crystalline lens escaped ; in seventeen, union took place between the implanted corneæ and the adjacent surfaces in forty-eight hours, so as to admit of the withdrawal of the ligatures, which are always a great source of irritation ; in four, three ligatures were employed ; in fourteen, only two, and with equally favourable results ; in twelve, adhesion of the iris to some part of the cicatrix ensued ; in one, sloughing of the cornea and destruction of the eye took place, an event which arose from the cornea being kept for half an hour without applying it, with the view of ascertaining how long it would be likely to retain a sufficient degree of vitality to enable it to unite. Dr. Bigger is inclined to think, that, generally speaking, a delay of this space of time would be prejudicial to the success of the operation, and that it may be always avoided by common dexterity on the part of the operator. Of the whole eighteen experimented on, sixteen recovered imperfect vision.

The difficulty of performing the experiment in such a way as to afford a chance of preserving the transparency of the implanted cornea, was a source of much disappointment to Dr. Bigger, and for a long period he could not succeed in devising any means for this purpose, until after his eighth experiment at home, when he discovered that much benefit might be derived from the local application of bichloride of mercury. A weak solution of this salt, gradually increased to the extent of three grains to the ounce of distilled water, and dropped into the eye three or four times a day, after the cornea had become adherent, was found by him to exercise an almost specific action in diminishing the opacity of the implanted cornea. He had made several trials with iodine and the nitrate of silver, but found that although they improved the appearance of the cicatrix, they did not appear to act upon the milky state of the

cornea. The only caution necessary to be observed in using the corrosive sublimate is, to begin with a weak solution of it, and not to use it until the implanted cornea is perfectly united to its new connexions.

Dr. Bigger exhibited to the meeting two rabbits, one of which had been treated with the bichloride of mercury, the other had been left to nature ; in the latter case nine months had elapsed since the performance of the operation ; in the former, only ten weeks. These animals, as has been already stated, were the subject of his first and last experiments at home, and were calculated to show the improvement made in the mode of performing the operation. The difference between them was very remarkable. The eye to which the bichloride of mercury had been applied, seemed to possess a distinct and perfect power of vision ; and there was nothing to indicate the existence of a transplanted cornea, but a slight line in the situation of the cicatrix, and some degree of conicality in the cornea. To enable himself and the meeting to judge more accurately of the power of vision in this animal, Dr. Bigger had destroyed the opposite eye. In the other animal vision was very imperfect, not so much from opacity of the cornea, as from the condition of the iris and the deeper-seated tissues of the eye. The cicatrix in this case was large, dense, and of a somewhat triangular form.

With reference to the applicability of the operation to the human species, Dr. Bigger observed, that he thought that in man the chances of success would be greater, at least so far as steadiness during the operation, avoidance of injury, and other obvious circumstances might contribute to that desirable end. With respect to the animal from which the cornea would be taken in the case of the human subject, Dr. Bigger has not yet decided, and invites the attention of comparative anatomists to this point of the investigation. The animal whose cornea he has found to make the nearest approach to that of man is the pig ; it is, however, much thicker and coarser in its texture. In a spirit of just and humane feeling, he deprecates the removal of

the cornea from the human eye, even when permitted for gain by the possessor ; but thinks that a person afflicted with incurable amaurosis might be prevailed on to part with his pellucid cornea, which might be replaced by one taken from some of the inferior animals. He thinks, however, that the operation should not be sanctioned under any circumstances, when the patient enjoys even a tolerable degree of vision with the other eye, at least until our knowledge has been increased by further experiments and observations. He is of opinion that cases of blindness caused by small-pox, ulcers on the cornea, and ophthalmia not affecting the deeper structures of the eye, would be the most favourable for operation. Dr. Bigger concluded his interesting memoir by imploring hospital surgeons to give the matter their attentive consideration, particularly as experiments and analogy had shown the feasibility of the operation.

ART. XXIII.—*Observations on Excision, particularly on Excision in the Middle of the Hand and Foot, and of the Phalanges of both.* By DR. GERNET, Assistant Surgeon to the General Hospital at Hamburg.

[Translated from the *Zeitschrift für die gesammte Medicin*, by S. L. L. BIGGER, M. B., L. R. C. S. D.]

It is an extraordinary circumstance, that the latter times, which have produced the fairest blossoms on so many branches of surgery, should (particularly in Germany) have bestowed so little attention on the excision of diseased joints.

Many of our most distinguished surgeons have spoken unfavourably of excision, and yet only a few have engaged themselves practically with it, a circumstance necessary to obtain a satisfactory result, and to enable any one to deduce a rational decision from it, as a method of operation.

The wish to publish a short commentary on those cases

which demand excision, supported by some experiments which I had the opportunity of making in the Hamburg Hospital, and the conviction that even unimportant endeavours in this field would carry with them their reward, has been the cause of this publication.

In the General Hospital during the last four years, twenty excisions have been performed by Dr. Fricke. Three times was the operation on the knee joint (once with successful, twice with unsuccessful result) performed. Once on the middle of the humerus, once on the condyles of the humerus, twice on the elbow joint, once on the shafts of both bones of the forearm, once on the clavicle; twice was a portion of the under jaw removed, and once a part of the third rib excised. The rest of the cases were excisions of the bones of the foot and hand. Of these twenty cases operated upon six died: in twelve the excision had the most favourable consequences: one, not quite cured, was permitted to leave the hospital at his own request; and one patient is yet in hospital without any hopes of recovery.

The local relations for the most part, besides some general indications, must determine in excision as in amputation, on the fitness or unfitness of its application; besides there are particular indications for excision of the shoulder joint, others for the decapitation of the bones of the fingers. Excision of the knee joint alone, as it appears, cannot lay great claims to approbation, despite of some favourable experiments, and by no possibility can ever enjoy extensive application. If any one therefore, supported on known experiments, will not allow the objections of many to prevail, that the wounds heal with difficulty after excision, that the operation is more dangerous than amputation, that often the affection of the soft parts is not cured by its employment, and many others, still in excision of the knee joint a perfectly successful result, which would show the utility of the operation is excessively doubtful; for, when (as the experiments made satisfactorily prove) the union of the parts follows soon, then

the question may be asked, can we wish our patient joy, and if a good wooden leg be not preferable to an extremity remarkably shortened and ankylosed in the knee joint? That an artificial joint may form where the knee was, has certainly been observed; however this is a rare occurrence, and even in cases similar to the well known one related by Jäger, in which the shortening was very trifling after the recovery of the patient, yet in the greater number of cases, a very large portion of bone must be removed, which leaves behind it a remarkable shortening of the limb. Besides, the objection that excision requires much longer time for cure than amputation, particularly in the knee-joint, must be granted, for in most persons it takes a very long time before they are able to use the extremity again; an objection which ought to be well considered in unhealthy subjects. In other respects this excision is almost less difficult than the others, and can be performed more quickly; hæmorrhage and injury to the nerves threaten no danger.

Two out of the three who underwent the operation in the Hamburg Hospital, died; one of hectic fever, the other of injurious shiverings shortly after the operation; the third case, which succeeded, strengthened us in the opinion we have given, how little satisfactory result can be expected from decapitation of the bones of the knee-joint, even when the operation succeeds. The patient, a girl of eight years of age, suffered for a year from scrofulous white swelling of the knee-joint, which passed into suppuration, and the formation of abscesses; the examination gave evidence of caries of both surfaces of the joint; hectic fever had been present many days. After the operation, in which both surfaces of the joint had to be removed to a considerable extent, and which was accomplished in very short time, the child recovered quickly, the bones grew gradually together, and femur and tibia form now a solid united mass. The extremity is shorter than the other by nearly two inches, and is greatly emaciated on account of the protracted nature of the healing process, although the general health of the patient

is as good as possible, and the leg is perfectly stiff from the hip to the ankle. Here the result of the operation is as favourable as possible ; yet, on seeing the leg, one cannot avoid thinking that the little patient would have been placed in a better condition by amputation. Should the protraction of the cure in this case to a year be attributed to scrofula,* still even if the patient had been perfectly healthy, and if the cause of the pain in the knee had been a simple wound, the shortening and ankylosis would have been the same, and the result in regard to the ultimate consequences of the excision would not have been more favourable.

We share, so far, the views taken by those surgeons, who have spoken against excision of the knee-joint, but to the others we assent. Besides the arguments used before, against those operations on the larger joints, above all on the knee, they have sought to prove, that the wound must be always very large, that the activity of the organism must be called upon in a remarkable degree for organic reproduction, whilst the individuals submitted to the operation are for the most part much broken down, and the sum of their strength will not easily hold out ; however, the case observed proves that to the success of the operation, a great deal of strength is not necessary, as it is notorious that very weakly individuals often bear great operations best ; also the objection that carries contra-indicates the operation, appears at least to have in its favour, that it is equally objectionable in amputation ; and Jäger asks with justice, why, on this account, not excise ? May not the disease have exhausted itself in its production ? The case of a girl, aged seventeen, who underwent excision of the humerus in the hospital, is an excellent voucher for this opinion.

The patient, a peasant girl of decided scrofulous habit, and who, during childhood, had contended with scrofula in many

* After two years' lying, the patient was at last brought to walk by the aid of a complicated machine.

forms ; in consequence of which, caries of the right humerus formed after a slight contusion of the arm ; this, by little and little affected the bone all round, so that towards the time of puberty the os brachii was almost severed across, so much so, that the arm could be bent nearly in a right angle ; in consequence of which, every voluntary motion and the use of the hand became impossible, and the patient had to endure excessive pain. It appeared now, that the period of the development of the scrofulous diathesis had come to a conclusion, and the operation was crowned with the most brilliant success. The carious parts in the upper third of the humerus were removed, and the cure followed slowly, although perfectly, on account of the soft parts having already suffered very much. The girl, by this excision, has not only preserved her arm, but it has again returned to a healthy condition, and she is able to perform all motions with it and the hand, and can even carry light weights with it.

Were it not for this case, however, caries appears in particular circumstances to be, above all things, a contra-indication to excision, and in a higher degree, as contra-indicating amputation ; for, although after amputation of a limb affected with caries, the disease of the bone often appears in another place, so it appears that this is the case yet oftener in excision, because one cannot determine exactly if all the diseased part is removed. If this be granted, then it only regards the caries which has been produced by a cachectic state of the system, or from some other cause engendered in cachectic situations.

Where caries comes on in persons otherwise healthy, although weakly, and particularly where it follows injury, then will excision in many cases in which we could only save the patient by amputation or exarticulation, preserve to the sufferer his limb almost in a normal condition.

The objection, that in general excision demands longer time than amputation to effect a cure, must be granted ; yet, this expression must be modified according to the situation in which one operates.

One of the most important excisions is, without doubt, that of the elbow joint. In it, on the whole, moderate shortening is not of much importance, as usually we can by moderate flexion of the arm render the ankylosis which follows less burdensome. A patient, whose case promised a happy result, died unfortunately after the operation of injurious shiverings; another, an ill-fed, cachectic subject, whose case gave very little hopes of a successful issue, after six months almost perfectly recovered the use of his arm, and some time after even some motion was obtained in the elbow joint.

A case of very great interest, similar to one described by Dr. Fricke in the 1st vol. of his *Annalen*, had an equally happy result. Ahlers, a man in the vigour of life, employed in covering roofs with lead, fell from a considerable height to the ground, and had both bones of his forearm fractured and splintered nearly in the centre. Several of the splinters were removed from the lacerated and remarkably contused wound of the soft parts; to remove others it was necessary to enlarge the wound. After some days, the wound was discoloured, so that gangrene was to be apprehended; it did not take place, proper measures having been had recourse to, yet a very copious discharge of bad pus, and hectic fever, came on, which brought the patient to the brink of the grave. The breach was not united, the torn parts lay partly over one another. Should amputation be performed, it must be on the upper arm, and thus the patient would lose his most useful member, the right hand: again, against the application of excision, according to the views of many, it is to be well considered, that it demands a greater expenditure of power, that the patient was in a weakly condition, which in so important an operation, and one requiring so much time as excision of both bones of the forearm, certainly must be considered as an objection. However, supported on former favourable experiments, the excision was undertaken. The external inconveniently situated wound was enlarged; the isolation of the bones, particularly of the under surfaces, was a

matter of great difficulty ; two inches of bone were taken away, the freshly incised surfaces brought together, and the arm bandaged in a manner proper to prevent the bones receding from one another. The hectic fever ceased soon after the operation, and, although the after treatment was extremely difficult, and rendered an unwearied attention necessary, still the patient recovered in eleven months. The bones were firmly united, the wounds of the soft parts of a good colour ; the patient could move freely the hand, all the fingers, and the elbow joint ; the arm was an inch and three quarters shorter than the left, and also somewhat emaciated.

After leaving the hospital, the patient made use of malt baths, animal baths, and such like ; and after the course of a year and a quarter, he was not yet in a condition to work at his business with the arm which had been operated on : at present he uses the arm as easily and as well as before the injury.

Only once was excision of the rib performed. The patient, aged forty-two, of pthysical habit, had a tumour in the vicinity of the upper rib of the left side, occasioned by a blow on the breast, which, on his admission to hospital, was about as large as a pigeon's egg. On opening it, a bad pus was discharged, and at the bottom caries of the third rib was discovered, at about an inch from the cartilage ; the caries was superficial, the bone surrounding it sound. As the patient was not much affected by the disease of his breast directly, excision of the carious part was determined upon.

The operation succeeded ; healthy granulations formed ; then a violent exacerbation of phthisis came on ; and through the bursting of a vomica the patient died suddenly, before the wound was healed.

As operations of a simpler nature, and performed on parts, the removal of which seems not of equal importance with that of the larger members, excision of the bones of the fingers and toes may yet be of greater importance to the surgeon than the others. Opportunities of practising them were offered in great

numbers in the Hamburg Hospital, and almost in all cases had a fortunate result. Excision of the metacarpal and metatarsal bones, particularly in cases of caries, it is well known, has, as yet, seldom been undertaken. Textor and Fricke alone have exercised themselves in these operations, and it appears that caries has more often given occasion to them than irreparable luxations of those bones.* How very important it is to mechanics to preserve each finger, and above all, the thumb, need hardly be mentioned; many, by the loss of the thumb, or of some fingers, would be deprived of the means of existence.

By amputation of a finger or toe, frequently a permanent deformity of the hand or foot is caused, which alone, the loss of the part not being considered, renders the patient incapable of a great many motions. Very often a permanent contraction of the extensor tendons remains, even of the fingers hitherto healthy, so that the motion of closing the hand, one of the most important, can be only partially or imperfectly performed.

In the following cases, excision of these bones was performed in this hospital.

Johann Wohlschläger, æt. 21, shoemaker, from Altona, somewhat scrofulous, was admitted the 4th of March, 1833. Almost three weeks before, he had pricked himself with a shoemaker's awl in the vicinity of the joint between the os metacarpi and the phalanx prima pollicis; it pained him little, and the wound appeared to heal. Shortly afterwards, violent inflammation of the hand and forearm came on, which on his admission was very considerable; it diminished, however, in a few weeks, but did not entirely disappear. This condition remained, with little alteration, till the middle of summer, when,

* Although we are perfectly willing to allow the originality due to Dr. Gernet for the publication of his practice in excision of the metacarpo-phalangeal articulations, yet we cannot omit to mention, that more than seven years ago we heard the operation proposed by our talented fellow-citizen, Robert Adams, Esq., in his lectures delivered at the Richmond School.

during a violent exacerbation, the tumour opened spontaneously, and exhibited caries of the joint, which in a few days extended more widely. On this account, on the 12th of June, excision of the affected part was undertaken. The wound which existed already was enlarged, above and below, a quarter of an inch ; from this a shorter incision passed at right angles exactly on the back of the joint. The four flaps were dissected back ; the muscles freed from the metacarpal bone of the thumb, by two incisions close to the bone, and then the chain saw drawn round it, and the head of the bone sawed off. In the same manner was the superficies of the joint of the first phalanx removed. Both bones, now deprived of their heads, were brought into apposition, the four flaps laid together, and as, from the necessary shortening, they were too large for the member, a small strip was cut off from one side with a scissors. The long incision was united with Karlsbad pins and the twisted suture. The hand was placed on a convenient cushion, and covered with a bladder of ice : the operation lasted twenty minutes.

Twenty hours after, the ice-bladder was removed ; and the day after, the ligatures withdrawn. The long incision had closed already in a considerable extent, but the oblique gave way entirely, after the removal of the band ; it was drawn together again with sticking plaster, and the rest of the wound filled lightly with charpie.

On the 16th June, swelling and pain had entirely disappeared ; the wound suppurated well, and began to granulate from the bottom. From this out, the wound was treated simply ; and in order to keep the thumb in the best possible position, it was fastened upon a small, firmly-laid together compress, with strips of plaster, a bandage about the hand, and a sling in which the arm reposed, increased the security of the whole. At the commencement of July, the patient could already move the finger a little ; and by the end of the month, he was able to press with force any body placed between the index finger and thumb. The succeeding week, the power of moving the member which

had been operated on, was greatly increased; the thumb was only a little shorter than that of the other hand: the patient was able, unassisted, to take hold of small objects, and to lift up, tolerably well, those which were larger and heavier. He assisted in the house in whatever was to be done, and was discharged on the 1st of September. We had an opportunity of seeing him lately; he made use of the hand which had been operated upon, and of the thumb, with almost the same ease and dexterity as the right healthy hand.

Gottfried Herold, pipe-maker, aged twenty-two, was admitted on the 2d of December, 1833. On the morning of this day he had wounded himself with an axe in the thumb of the left hand. On examination, there was to be seen on the back of the injured member, in part over the os metacarpi, and partly over the os phalangis primæ pollicis, a gaping wound passing somewhat obliquely from within outwards; it was $2\frac{1}{2}$ inches long, and penetrated to the bone, the periosteum of which was injured. The hemorrhage had ceased, the swelling was trifling, the pain of no consequence, and the thumb capable of motion. Despite of gentle handling, a considerable swelling of the thumb, and of the whole hand, arose, which, in a few days, extended to the forearm; active motion of the latter became impossible. If any one attempted to move the thumb, it caused the most violent pain. The wound had a bad appearance; bled for very slight cause, and foul matter came from it. Upon the back, and deep in the palm of the hand, abscesses formed, so that deep incisions were rendered necessary. In consequence, the general health suffered; paroxysms of fever came on. The probe clearly indicated caries of the heads of the bones, forming the articulation between the metacarpal bone and first phalanx of the thumb.

In this case, excision was performed in nearly the same manner as described above, with the exception, that small fine saws were made use of in place of the chain saw.

Before a month had passed, the patient could move the

thumb tolerably well ; and this motivity, as well as the strength with which he could press on any thing placed between the index finger and the thumb, increased very much. The wound was well coloured ; the shortening, after five weeks, was about half an inch. In March he was discharged cured. He returned to his occupation of pipe-making, and made use of the thumb which had been operated upon, equally well with that of the healthy right hand.

L. F. Schulke, aged 23, from Hanover, admitted 22nd January, 1834, a working shoemaker. Seven days previously he had wounded himself, whilst at work, with an awl, in the left hand, near the joint between the first phalanx and the os metacarpi digitis tertii. Having drawn out the instrument, he continued his work. Soon after, however, so violent an inflammation of the hand came on, that he was obliged to seek our aid. The swelling was considerable on his admission ; the neighbourhood of the joint intolerably painful. There was a small triangular wound where the awl had penetrated. Any active motion with the affected finger was absolutely impossible.

Despite of gentle treatment, the swelling increased ; the pain became more violent ; fistulous passages formed in the palm of the hand ; by aid of the probe we recognized perforation and caries of the injured joint ; a bad discharge flowed from the wound on pressure, mingled with synovia ; in consequence the patient became feverish to a considerable degree. Operation was now necessary.

The external wound was extended upwards, into the interosseal space between the os metacarpi digiti et medii indicis ; inferiorly it was not necessary to increase it. Then deep incisions separated the ligamentous bands of those bones, at the affected joint, which by this was laid bare on the thumb side of the hand. Some incisions in the upper part of the wound, directed close to the metacarpal bone, exposed it as far as was necessary on every side. The soft parts were separated from the bone with spatulæ, and the heads of the bones were sawed off with a fine

saw and removed. The length of the parts taken away was nearly three quarters of an inch. Torsion had to be employed on many bleeding arteries. The operation lasted fifteen minutes. The wound was filled with charpie, and cold applications were prescribed.

For some days after the operation there was too great reaction, but then healthy suppuration and granulation came on. Fourteen days after the operation the patient could move his finger a little; the bones lay tolerably near one another; the shortening was about half an inch. After five weeks the wound had recovered its colour, the motivity of the finger was still very little, but it increased something every day. From this time the recovery preceded very slowly; the patient was recommended to practise moving the finger; he was employed administering frictions with oil, &c., and in many other light occupations. On this account he remained a long time in hospital, and made use of the steam douche with advantage, after the employment of which, the capability of moving the finger increased. He was discharged in May, and returned to his occupation again.

G. W. Schiebeck from Potsdam, æt. 33, working shoemaker, admitted 29th September, 1834, This patient was of cachectic appearance, he had suffered much from scrofula in various forms during his youth, complained of pain already for nine months with swelling of the left thumb, caused, as he conceived, by a cord which he had tied fast about it. For a long time he was treated as an extern patient. On admission there was considerable inflammation, there was a small round opening on the first phalanx and outer side of the left thumb, out of which a thin bad matter flowed in considerable quantity. The probe being introduced indicated caries of the joint between the metacarpal bone and the first phalanx.

Excision was undertaken on the 1st of October. An incision, an inch in length, was made directly over the articulation between the first phalanx and metacarpal bone, then the thumb

was very much flexed so as to separate the heads of the bones as much as possible, and then both heads carefully sawed off with a small fine saw. The bones were then approached without any violence to one another, and the wound closed with strips of plaster, in order to lessen the gaping of its edges. In this case the wounds healed very slowly, on account of a tolerably large piece of bone of the first phalanx exfoliating. The patient was permitted to depart after three months at his own desire, although the capability of using the thumb was not advanced as far as we could have wished.

P. Sandon, æt. 14, the son of a peasant from Winsen, who previously had enjoyed good health, admitted 3rd of June 1835. Without any known cause, redness and swelling of the left foot came on, particularly in the line of the great toe, half a year before; later an opening occurred over the toe, at the bottom of which caries of the joint between the first and second phalanges was found. The soft parts had suffered but little; for many months the patient could not use the left foot without violent pain in the ball of the foot. An abscess in the buttock with fistulous passages, delayed the operation till the 5th of August. The wound was enlarged above and below over the affected joint, and the bones exposed by an incision. The whole joint was carious; both the first and second phalanx shared in it, principally the latter. The bones were isolated to the extent of an inch from the soft parts, the ligaments cut through, and the head of the first phalanx first cut through with a fine saw, then the head of the second; after this the wound was filled with dry charpie. The operation lasted one quarter of an hour. The foot was then supported in bed against a foot-piece, charpie placed under the toes, particularly under the great and second toes, and the whole supported by a bandage. Healthy suppuration came on. The first bandages were removed after five days. In order to bring the surfaces of the bones in nearer apposition, a splint was applied both to the

external and internal side of the great toe, fastened over the nail with sticking plaster, and when this was drawn and secured to the back of the foot, the bones were approximated to within a few lines. A circular bandage was placed around the leg, in order to impede the motion of the muscles; the foot remained quiet on the foot-board: the leg was secured in a linen bandage, on account of the boy's being restless and uneasy. This bandage remained unchanged. After five weeks the patient was able to stand up and to go about; the wound, except a very small portion, was healed; a small portion of bone which had become necrotic was the cause which prevented the whole from healing; before this was cast off, the patient, who went about without any trouble, was discharged at the request of his relatives.

F. Jostingmeyer, aged 29, working cabinet maker, admitted 14th of Jan., 1835. Twelve years before, this man, who had hitherto been healthy, got a swelling in the ball of the right foot, occasioned by pressure of a boot, which gradually increased to such an extent, that it was an obstruction to him in his occupation, and caused him, when walking or standing, the most violent pain. To the touch the tumour appeared to consist of two parts, one of which, situated in the soft parts, had a doughy consistence, similar to a melicerous tumour not much distended, which could be moved with the skin, whilst the other was hard, sharp, and immoveable, and united with the bone. It followed the motions of the first phalanx of the great toe, and there was no doubt that we had to do with an exostosis, which sprung from the joint of the first phalanx.

On the 18th of January excision was undertaken; by two elliptical incisions the swelling was surrounded, and the soft parts of it removed; then the soft parts about the joint separated, the bones isolated, the joint cut through, and the head of the first phalanx first removed with the fine saw, then that of the metacarpal bone. The wound was filled with charpie, the foot

fastened upon a foot-piece, and a thick layer of charpie brought under the toes, particularly under the great toe.

The examination of the excised parts exhibited destruction of the head of the first phalanx, and a remarkable degeneration of the cartilage. Within a few days healthy suppuration set in, and in four weeks the wound was perfectly closed; about this time a portion of the metacarpal bone, which had become necrotic, separated; this protracted the healing process. After seven weeks the patient could stand up, the toe was moveable in the metatarso-phalangeal articulation. On the 8th of April he was fit to be discharged.

Scharrenback, a labourer, aged 56, admitted the 20th of February, 1835.

He had suffered from a soft elastic tumour in the vicinity and on the side of the joint of the first phalanx and metacarpal bone of the great toe, which rendered walking very difficult and constantly caused him great pain.

The tumour, which originated from the pressure of a shoe, was opened on his admission, and a thin, bad matter discharged. Caries of the affected joint was found. The 29th of February the opening into the abscess was enlarged above and below, by which means the parts to be excised were laid bare; by a few more incisions the bones were isolated, the joint perfectly separated, and the head of the first phalanx, then that of the metacarpal bone, sawed off with the fine saw. Some days after the operation the wound was superficially gangrenous, which however did not advance farther, but was repelled by healthy granulations. Twelve days later an abscess formed in the neighbourhood of the wound, on the inner side of the great toe, the walls of which united after some time, but which retarded very much the curative process; towards the end of the third week the patient stood up and went about.

The cases given are sufficient vouchers for our assertions, were it not for excision, amputation or exarticulation should have been performed. The operation perfectly succeeded in

five patients out of seven. The sixth was nearly well when his dismissal was required; and the seventh was discharged relieved; in this case either all the carious parts were not removed, or if they were, there existed in the apparently healthy bone the germ of the disease, which after the operation again developed itself spontaneously. Perchance, had the bones been excised a few lines more, it is possible that no caries had exhibited itself at a later period, and the operation had succeeded in the same time as the others. In the four cases in which it was performed on the hand, the wounds were healed, and the bones were solidly united in five and a half weeks; after seven weeks the three patients in whom the cure perfectly succeeded, were in a condition to work. Of the patients in whom the operation was performed on the foot, on one it was necessary to repeat it after five weeks; on a second after ten weeks, in consequence of a necrotic piece of bone which separated slowly and with difficulty; the third, in whose foot a large abscess formed, also an unpleasant complication, walked about in less than four weeks.

Supported on these cases, excision of the phalanges, of the metacarpal and metatarsal bones, may have the objection satisfactorily removed, that it demands a very long time to effect a cure. And some of these cases, viz., the second and third, were complicated with disease of the cellular tissue and skin in such a manner, and to such an extent, that this, in the opinion of many, would have given a contra-indication to excision; however, in a few days after the operations, the appearance of the affected soft parts improved, the suppuration became healthy, and not the slightest mischance occurred. The shortening is much less remarkable in the excised member than could be expected from the length of the bones removed; it never amounted to the actual length, in most cases to only the half, and in some to two-thirds.

We have spoken above of the advantages derivable to the patient from successful excision. We will only add here, that,

amongst the cases adduced, the operations on the thumb are the most important, because wounding of this member in the vicinity of the joint between the metacarpal bone and the first phalanx very frequently happens, and the stiffness which remains in this member, which even in the normal state enjoys very little motion, is of no importance. The general abuse of the value of the operation of excision, that it is in general difficult to perform, that the soft parts suffer much, and that the patient is intolerably tortured, &c. cannot honestly prevail against it.* It lasts longer than the amputation of some fingers ; but is not this evil unworthy of consideration in comparison with retaining of the member ? In the second case, which, on account of the great injury to the soft parts, demanded great caution, the operation required, including the bandaging, twenty-six minutes. This was the longest time found necessary in the excision of this bone. In first case it lasted twenty minutes, in the second and third, fifteen minutes. The operation on the bones of the foot lasted ten minutes, to at most fifteen minutes. All the patients bore it well, and did not give signs of suffering more pain than what is ordinary under similar circumstances. The soft parts, sinews, vessels, and nerves, can be protected without great difficulty ; the knife soon strikes on the bone, and its first direction can

* Mr. J. Syme, Professor of Clinical Surgery in the University of Edinburgh, has, in his "*Principles of Surgery*," given an opinion nearly coincident with that of our author, viz. : "It is now ascertained by experience that the limb may be saved by cutting out the articulation. The softened, discoloured, and ulcerated integuments, the thickened and indurated cellular substance, and the gelatinous synovial membrane, are found to afford no serious obstacle to recovery, provided the whole of the bones, so far as they are actually carious, are taken away. The operation requisite for this purpose, though severe, is not more dangerous than amputation, because the joint, previous to its performance, has been opened by the disease ; the whole of the articulating tissues, which are apt to suffer violent inflammation when initiated, are either destroyed or removed ; the great blood vessels and nerves are not interfered with, and the patient is not subjected to the shock which is caused by taking off the limb." (p. 211.)

always be so managed that no parts of consequence be injured. Bruising of the soft parts which might become interposed after the operation, or accidents to the nerves, &c., we have not remarked in any case; and it seems to us that in excision, in which the parts are kept in their integrity, that it is less to be feared than in the other operation in which they are cut across. The causes by which such nervous accidents may be provoked, are as yet to us unknown; but be that as it may, the cases adduced give evidence that they are not more to be feared than after the other operations.

The history of the sixth case leads to the question, if, in this case, where the articulating surface of the metatarsal bone was healthy and perfectly uninjured, we were warranted in removing it? Gooch, Cooper, and others, who have excised on account of *luxation* of this bone, only removed one head; yet it seems more advantageous to form two even fresh wounds of the bone, than to bring one such into only partial apposition with a nearly hemispherical body, covered with synovial membrane and cartilage. In order to the growing together of both osseous surfaces a change must first take place in the superficies of the joint, a circumstance which naturally delays the healing process, whilst it cannot prevent ankylosis; the shortening in such case will always be inconsiderable, as it is necessary only to remove a small portion of the head of the healthy joint.

Jäger (in Rust's *Handbuch der Chirurgie*) proposes the following indications, for the application of excision to the heads of the metacarpal, metatarsal, and phalangeal bones:—

1st. Luxation of the fingers and toes, particularly of the thumb and great toe, or of the phalanges, when the dislocation is irreducible.

2nd. Compound fractures of the bones of the middle of the hand and foot.

3rd. Caries and osteosarcoma of those bones, if it be confined to one extremity of the bone, and if the phalanges of the fingers or toes are not engaged.

We give our full assent to these indications, except that they do not appear to us sufficiently extended and clearly enough given. Why should complicated fractures of the phalanges in the second indication, fractures demanding operation more than any others, not be as much noticed as fractures of the middle bones of hand and foot? Then the expression complicated fractures requires a closer definition. It appears that Jäger here meant those cases, in which, with the injury of the soft parts, a piece of bone protruded externally, and separated from its connexions,—was thoroughly dislocated; that then, in case it could not be replaced, that it should be removed. But why should not this be done as well in the phalanges as in the other bones, for of the fingers particularly it is not indifferent even to lose an half? We would therefore alter the indication to—"In complicated fractures of the bones of the middle of the hand and foot, as well as of the phalanges, where a separated and dislocated portion of bone cannot be restored to its normal situation."

The third indication also does not seem to us sufficiently extended, nor given in sufficiently plain terms. If it means that the operation should be performed where caries is confined to a part of the joint, or to a not too large portion of the bone, (it matters not whether metacarpal, metatarsal, or phalangeal,) then we agree perfectly in this view; although we could wish that the intention were more accurately explained; for even when caries includes a third of the bone, we are of opinion that in the thumb excision ought to be attempted. Although the shortening may be very great, still the preserving it, even thus mutilated, is of great importance. If it means, however, that the operation can only be performed when caries is confined to a joint, then we cannot see the foundation of such an opinion, and we overturn it by the cases described. The third indication may be laid down in the following manner:—

"In caries and osteosarcoma, as well of the bones in the middle of the hand and foot, as of the phalanges, if the affection has not engaged more than a third of them."

If the bones were diseased to a greater extent, then we could hardly hope that union could be obtained in ordinary cases ; as much as one-third may, however, be taken away from both bones, and it is unimportant, if, at first, the surfaces of the bones cannot be brought close together, as granulations form, which at last grow together, and form a solid union.

The contra-indications may be guessed from the indications, and we agree perfectly with Jäger in them : such as, fractures and caries which affect the whole bone ; only the case is worthy of consideration, that in fracture we excise a dislocated portion of bone, and endeavour to unite the remaining bones which perhaps are comminuted. The disease of the soft parts can seldom be of that nature in the head or foot as to prevent the operation.

With regard to its difficulty, the operation may hold a middle place between amputation and exarticulation. It requires no particular preparation. In excision of the hand, we place it on a table in an easy position, the table must not be too low, whilst the patient sits upon a chair beside it : the operation on the foot is performed whilst the patient lies on a table : two assistants are necessary, a third can also render the operation easier, and accelerate it. Independent of the modifications which arise out of the peculiarities of particular cases, the operation may be divided into three stages. 1st.—The incision through the external parts. If there be a wound or incision there already, then advantage is taken of it if possible. It is seldom necessary to make the incision longer than two inches ; at the same time it never should be less than an inch and a quarter. It is better to make the incision somewhat too long than too short, because on account of the parts being freer, the parts about it suffer less from pressure or bruising. Such an incision is sufficient. The cruciform double incision, as employed in the first case, we have again given up as unnecessary. Torsion is immediately employed on the bleeding vessels. *Second stage* :—Whilst the assistants press back the soft parts from the bones, with their fingers and spatulæ, the operator isolates them

with short cuts of the knife on all sides; he then cuts into the joint, which in most cases is already open, and severs it entirely.

Third stage :—The first and second portions of bone are cut off with the saw, whilst the soft parts are carefully isolated and protected, and then removed with the forceps or nippers. Dr. Fricke usually makes use of small fine saws; and it cannot be denied, that to any one accustomed to saw, the operation is much more easily and quickly performed with them, and the patient is spared the violent pain caused by the drawing through of the chain-saw, or the application of other complicated saws, (we have not the saw invented by Heyne,) from the pressure exercised by them on the soft parts. The wound is then cleared of the blood, and after the flat surfaces of bone have been brought near to one another without violence, the cavity should be filled with charpie, loosely, and the member which has been operated on supported by a cushion. Uniting the wound by the first intention, which in two cases was tried, has again been given up, as it only prevented the healing, and complicated the operation uselessly. Generally, cold applications were made for twenty-four hours, and in those cases in which the soft parts, already very thin, were discoloured, aromatic ones. It was never necessary to apply the cold longer than twenty-four hours.

The instruments necessary for the operation consist in some common bistouries, many small guarded saws, which must be carefully made, and should possess the appropriate elasticity, and not be too long, &c.; forceps, both for torsion of the bleeding vessels, and for common use; a bone forceps for the removal of roughnesses and points of bone; some nippers, and a few spatulæ.

Unpleasant accidents, as said before, have not occurred in any case. The most disagreeable part of the operation consists in the difficulty of sawing, a circumstance mostly dependent on the saws, when they are too limber, on account of which it is difficult to make the first cut with them, as from the narrowness of the space, and the smallness of the bones, they must be worked by short repeated jerks.

The bandaging, and the after treatment, demands by much the greatest attention and foresight. As already remarked, it is not necessary that the bones should be perfectly close to one another, and it cannot be accomplished without the greatest difficulty, therefore it is not necessary to take the trouble to approach them so much; the surfaces will soon be brought together by means of granulation, and bringing them together at first could only be injurious to the success of the operation in those cases, in which portions of bone of considerable size had been removed, on account of the pressure which must necessarily be exercised to attain this end. The bandage should be a simple roller for the first twenty-four to forty-eight hours, then it must be changed, and the pursuing of the three following indications will be sufficient to effect a cure, covering the wound, and graduating its vital condition, bringing together the osseous surfaces without the application of force, and lastly that the soft parts should be prevented from separating, the limb kept from moving, and protected from all injurious influences.

The first indication will be accomplished safest in the simplest manner, and demands, if no complication be present, the common treatment of suppurating granulating surfaces. There is some difficulty in fulfilling the second indication perfectly; we have tried, as already said, for the most part to accomplish it, after twenty-four or forty-eight hours, by means of a peculiarly shaped bandage. Small splints of a foot in length are applied either on both sides, or on the upper and under surface of the first phalanx, and secured there with sticking plaster, whilst some one draws them evenly, but not too strongly at first, and approaches the osseous surfaces one to another; the ends of the splints are then secured over the joint of the hand or foot with sticking plaster. At first they are to be drawn closer every day, then every two days, until, after fourteen days or three weeks, their employment is not more required. In excision of the foot, for the most part, it is not necessary to make use of splints, because with a foot-piece, firm pads of charpie, and some strips of sticking plaster, which is placed from the middle

over the point of the phalanx, whilst the ends are drawn towards the heel and fastened, fully accomplishes the intention. In the operation on the hand the splints placed in this manner are of the greatest advantage, and a part of the imperfect success in the fourth case may not unjustly be attributed to leaving this apparatus off, as it is evidently of very great importance in a part so very free as the thumb, which by the removal of the joint has lost all support, to sustain it by a proper apparatus, which a simple roller cannot effect. In the second case, on account of the thumb being very long, and the soft parts much lacerated, for its better support small thin slips of box-wood were placed over the splints, and this entire apparatus secured by sticking plaster drawn round it in circles. The third indication is fulfilled by the rational accomplishment of the second; it is at the same time assisted by placing the hand and arm in a convenient splint, and by supporting the leg and foot upon an even firm pad well supported; the splint for the arm is best, if formed at an acute angle, so that the hand lies higher than the elbow. In excision of the thumb we place a roller of linen in the palm of the hand, on which it can rest; in excision of the other fingers it is sufficient to lay a pad of charpie under the hand lying with the palm upwards; in excision of the foot, we make use of a foot-piece, as already described, and we secure the easy position of the limb, by enclosing it in a sheet many times folded, and securing it there with bandages.

ART. XXIV.—*Violent Pulsations of the Aorta in the Epigastric Region, and their Treatment.* By WILLIAM FAUSSETT, A. B., Licentiate of the Royal College of Surgeons in Ireland, and one of the Surgeons of the Victoria Institution for Diseases of Children.

To designate a symptom as a disease, and propound for *it* a method of treatment, is, to say the least of it, unscientific, in

the above heading; however, I have selected the most prominent of a group of morbid symptoms as the representative of the rest, in referring to the nature and treatment of *an affection or complaint*, which Dr. Baillie has particularly described, but for which he tells us, he knew of no method of *cure*.

Dr. Baillie, in his miscellaneous works, as published by Mr. Wardrop, says: “ I have been frequently consulted within the last fifteen years, respecting a pulsation which is distinctly felt in the epigastric region. The patient is generally greatly alarmed, and has seldom found much comfort from the opinion given him by his medical attendant,—the pulsation seldom depends on any disease of the aorta itself, or of its large branches,—it is, constantly, *of very little importance*, as the patient may be troubled with the affection for years, and have his health but little impaired.” Any person who has seen a patient suffering from this affection, and witnessed the anxiety and distress thereon attendant, can scarcely have agreed with Dr. Baillie, in thinking it of but *little importance*, or as little likely to impair the health. He speaks perhaps, however, of its relative tendency and importance, as compared with the far more formidable disease of aneurism, from which he tells us we must carefully distinguish it.

Dr. Baillie further states his opinion, that when these pulsations once take place, they become confirmed, and seldom subside entirely; he talks of mitigating the symptoms, but candidly declares, “ *I am not acquainted with any means of curing the affection.*” He likewise tells us that Sir Cæsar Hawkins and Mr. Broomfield mistook it for aneurism; while his uncle, the celebrated Dr. William Hunter, confessed his ignorance alike of the disease, and of its treatment.

The advances which of late years have been made in pathology, and the improvements that have taken place in the art of diagnosis, render, I believe, the affection less likely to be mistaken for aneurism, than when Dr. Baillie wrote; but I am not aware that much additional *useful* information has been

gained with respect to it, or that from the many methods of treatment that have been successively proposed and rejected, there has, as yet, been published any thing like a consistent, decisive, and successful method of *cure*. To distinguish from aneurism, quiet the patient's apprehensions as to his being the subject of so dangerous a complaint, and improve the digestive functions, are Dr. Baillie's precepts for mitigating not curing the affection. More modern practice goes further, and enjoins a host of antinervous medicines, valerian, castor, &c. ; because, forsooth, it is a *nervous* disease. The term *nervous*, as thus applied, is extremely vague, and, perhaps, as in other instances, is used for what we do not particularly well understand. Irregular arterial pulsations are, no doubt, sometimes dependent on, or associated with, what is called a "*nervous diathesis* ;" but that those violent pulsations at the epigastrium, to which I refer, and which are attended with so much anxiety and distress on the patient's part, such deep despondency as to the result, and susceptibility of alarm, and fright from trifling causes, should, necessarily, be accounted nervous, and looked upon as so many evidences of debility in the system ; I can not admit, neither can I assent to the propriety of indiscriminately using tonics and stimulants for their relief, upon the plea of *nervousness* and *hypochondriasis*, even when there are present the concurrent symptoms of weak pulse, loss of strength, and emaciation.

Dr. Baillie having pronounced violent epigastric pulsations of *little importance*, and unlikely to militate against longevity, has been, I am satisfied, attended with mischief, as such a declaration has more than once been found a convenient reason for his followers *thinking likewise*. This statement indeed seems to have been too much grounded upon a single case, and yet if any one had asked the unhappy sufferer, whom he refers to as having laboured for five and twenty years under this ailment, whether *he* thought it of little importance, he would have received perhaps a different opinion. But it is probable, as has been already hinted, that Dr. Baillie spoke, in some

degree, in reference to aneurism, as he plainly intimates that a decisive and rational method of cure is a matter much to be desired.

In the present paper I do not pretend to add much to what is already known of the causes and nature of epigastric pulsations, but I shall allude first to a few of the leading features of the complaint, and then to a method of treatment which has been found eminently successful in the many cases in which I have known it tried.

The complaint is most apt to occur at the middle period of life. Dr. Baillie knew of but one or two instances of it in persons so young as thirty. I have, however, known three cases of very severe epigastric pulsations occurring, one of them at twenty, the others between twenty-three and twenty-five, all of them in unmarried females, and in the better order of society. According to Dr. Baillie's experience, it was more commonly to be found in men than women; but this, I believe, is the reverse of what other practitioners have met with. The rich and poor are alike subject to it. The digestive organs are always deranged in their functions; the bowels are torpid, and the feet cold: in some cases, there is considerable constitutional derangement, with headach, vomiting, emaciation, lowness of spirits, and prostration of strength. There is, *in every case*, pain, on pressure of the pit of the stomach, or towards the umbilicus; and, *in every case*, a considerable fullness, sometimes amounting to tumour. The pulse at the wrist is usually perfectly natural and regular in its beats; in a few cases, however, it is accelerated. The pulsations are marked by different degrees of strength in different individuals, and vary also in the same individual. They come on, most violently, in the afternoon, or some time after dinner, there being, in some degree, a remission in the morning. They are exceedingly distinct in the erect posture, but perhaps still more so in the horizontal. They are frequently visible to the eye, often indicating, as Dr. Baillie observes, the boundary of the artery as far as the umbilicus. In some of the severer cases, the degree of vital

depression is truly remarkable ; and where the head is engaged, there is not only uneasiness complained of there, but a sense of weight, fulness, tightness, or throbbing. In one case, where the epigastric pulsations were thought lightly of, or indifferently treated, the patient, who was personally known to me, died of hydrocephalus ; and it is worth remarking, that Dr. Baillie's ill-fated patient, already mentioned, and in whom, perhaps, the pulsations occurred in a more moderate degree, ultimately became the subject of paralysis.

The following are a few of the many causes that have been enumerated as giving rise to this affection : tumours from enlarged glands at the root of the mesentery, or between its duplicatures ; tumours developed in the stomach ; scirrhus of the pylorus ; enlargement of the liver, with induration or abscess ; congested duodenum ; colon distended with air, or hardened fæces ; enlarged pancreas, &c. &c. Any of the above causes will probably be found to operate in one of two ways,* either by direct pressure upon the vessel itself, thus more or less impeding the current of its blood, or by pressure exerted upon the nerves. An artery unduly pressed upon, has its pulsation augmented, which appears to be a modification of the same law by which an artery ceases to pulsate, when it is laid bare, and all pressure removed. If, then, any kind of tumour come to press upon the course of the vessel thus lessening its calibre, and increasing the resistance to the current of blood, and it be a law that the power of propulsion be proportioned to the resistance, we have, perhaps, some proof of the vital contractility of arteries afforded us by the phænomena of epigastric pulsations ; for we are probably justified in inferring, that the artery, by virtue of some inherent quality, is capable of adapting the force of its currents to the resistance to be overcome. Or, without admit-

* These two modes of operating may perhaps be reduced to one, as both appear to excite increased arterial pulsations, by producing an irritation of the nervous tissues of the artery.

ting this hypothesis, if we suppose the power to remain unchanged, while the resistance is augmented as before, then the current of blood, as it rushes towards the point of increased resistance, or where the vessel happens to be diminished in its calibre, encounters a check, which, by reason of the elasticity of the vessel, may give rise to the increased pulsation. This, however, to my mind, is too mechanical, not corroborated, which, if true, I think it ought to be, by auscultation, and, on the whole, far less satisfactory than the doctrine of vital contractility, which bears upon it the impress of Nature's all provident hand, in the exhibition of a quality capable of suiting the means to every contingency.

I have stated that many of the causes of epigastric pulsations would probably be found to operate in one of two ways, either by direct pressure on the vessels themselves, or by pressure upon the nerves. Now, considering for a moment the anatomy of the aorta in the epigastric region, the contiguity of the great nervous centre of the sympathetic, associating here its branches with the vagus and spinal nerves, and the remarkable plexiform arrangement of nervous filaments, which, in every direction, encompass the aorta and its great branches, and enter into the intimate tissues of the vessels' coats; considering also the manner in which the course of the aorta is locked in between so many and important organs, each of which, periodically, becomes the theatre of an increased vascular determination, and very often of congestions, obstructions, tumours, &c. we may judge both of the great susceptibility which the arteries in this region have of morbid excitement from the crowd of nerves in which they are enveloped, and of the causes of such excitement, from the many lesions incident to surrounding organs; for, supposing that any of the neighbouring viscera should become congested, or subacutely inflamed, then the numerous nerves that ramify therein will be implicated, and being deranged by pressure, or inflammation, the great nervous centre, or ganglia, from which they have just proceeded, will be sure to participate, and propagate

the morbid impressions along the several filaments to the vessels' coats, and to the stomach, liver, and rest of the chylopoietic viscera, producing in the one case violent inordinate pulsations, and in the other a long train of digestive ailments—indigestion, loss of appetite, flatulence, torpid bowels, cold feet; with which we also see sometimes linked what are called *nervous* affections: hysteria, hypochondriasis, &c. An extensive chain of morbid sympathies comes thus to arise from a certain degree of *congestion, or chronic inflammation*, which is probably the *origo mali*, the fruitful source and fountain of the malady. At all events, a *local congestion* appears in every instance to exist, as evidenced by the symptoms; and that *it* is the parent of the mischief seems to be confirmed by the fact, that a plan of treatment generally applicable to such a condition, is found equal to remove those symptoms.

But to dwell for a moment upon this subject. I have stated that in every case there is *pain on pressure*. This, as it is well known, is no novel occurrence in the epigastrium, and a symptom of rather general import; nevertheless, it is one which should never be slighted, especially in the complaint in question, where it is often *very considerable*. Again, there is fulness with hardness, or at least *a want of the soft, pliable, and natural feel of parts*, so that there is conveyed by the sense of touch the idea of a solid or indurated viscus beneath; the form, position, and relations of which we are prevented from precisely ascertaining, owing to the natural shape and boundaries of the epigastrium. Again, there is an overpowering *sense of vital depression*, the sure and never-failing accompaniment of visceral congestion. Lastly, there is the constant and uniform *result of the treatment*, which shall hereafter be more fully noticed; and these are what I look upon as so many evidences of local congestion in the absence of pathological proof. And therefore, though there be an apparent *variety* of causation, the proximate cause is perhaps in most cases not very dissimilar, seeing that there is a sameness in the symptoms, and that the treatment found successful in one case is

applicable to many. How fatal then is the mistake of calling this a purely *nervous* disease, and designating the subjects of it as *nervous*, *hysterical*, and *hypochondriacal*, because they occasionally discover some traces of such affections. How still more fatal the error of administering for *their* relief stimulants and tonics, bark, bitters, and steel,—a course of practice which, by aggravating disease, must necessarily prove as discreditable to ourselves, as it is injurious to our patients.

If we admit this view of the subject, the treatment comes easily to be inferred ; but the fact is, that this view of the complaint, imperfect as it is, has in itself been derived in a large measure from the results of treatment. “*Ubi irritatio, ibi fluxus est,*” was an axiom of the illustrious Celsus : and in so many words affords a rationale of cure, wherever irritation has been followed by determination of blood and congestion, or inflammation. The plan of treatment which I wish to refer to is as follows : local bleeding by cupping and leeching, (a combination of these, leeching first and *then* cupping, answers the purpose well.) In a few cases general blood-letting is necessary, viz., those in which the symptoms are severe, and local abstraction of blood has been employed in vain, or where the pulse seems to warrant the practice ; or without this criterion, where there is a sense of tightness, fulness, or uneasiness in the head,—in any modification of such cases, venæsection from the arm to a moderate extent, may be practised with safety, the relief afforded the patient will be striking, and the blood will often be found buffed, and even cupped. After local bleeding, counter-irritation by means of antimonial ointment, or the croton oil, rubbed over the epigastrium, or between the shoulders, may be employed with benefit. The state of the digestive organs demands particular attention, if an obstruction be suspected in the arch of the colon from an accumulation of *fæces* there, or in any other part of the intestines, a tolerably active purgative* had best be first exhibited

* A mild purgative will often succeed where an active one will not.

and mild aperients afterwards. But as soon as local bleeding has been *first* practised, and the bowels moved, we should at once have recourse to the use of blue pill, combined with sedatives and James's powder, or hippo, and give it twice or thrice daily, until the mouth becomes slightly affected. The inspissated juice of cicuta, or henbane and hippo, are what I have conjoined with blue pill, and derived the greatest advantage from. If the urgency of the symptoms demand it, and it be thought desirable to expedite the effect of the mineral upon the mouth, mercurial inunction either to the inner part of the thighs, or over the abdomen, should be resorted to, for it will invariably be found, the moment the gums become tender, and seldom before this period, that all the symptoms are mitigated. A strict regimen must be also enjoined; meat, wine, and stimulants, must be forbidden, and contrary to what is imagined, and usually practised, the patient's diet should be made to consist of milk, and farinaceous vegetables; barley, arrow-root, sago, &c. &c. In the course of a few days, (averaging at about a fortnight,) and often contemporaneously with the mouth becoming sore, it will be found that the epigastric pulsations have ceased, that the appetite and digestive functions have improved, the patient's spirits returned, and a general renovation taken place in his state of health.

These effects may be thought owing to the applicability of the treatment to the co-existing derangement of the digestive organs, which latter being regarded as the cause of the pulsations, both are thus removed together, "*causâ remotâ tollitur effectus.*" I will not dispute any thing merely theoretical, but am disposed to consider all the symptoms as links of the same chain, all the conjoint effects of local congestion, exciting morbid impressions upon the centre, and branches of the sympathetic nerve; but theory, however excellent, can never acquire the authenticity of fact: I shall, therefore, content myself with affirming, that epigastric pulsations, such as I have described, with the several morbid phenomena attending on them, will be

found to vanish before the method of treatment above adduced, and that this fact needs but unprejudiced experiment to confirm it. It is remarkable, also, that the affection thus cured is not likely to return; indeed, I have known but one case in which there was a slight relapse. Upon the whole, there seems to be a habit of body, or state of the system, in all cases somewhat alike, and yielding satisfactorily and speedily to the same course of treatment; insomuch, that no group of venereal symptoms will give place more completely to a judicious course of mercury, (selecting even those cases for which this mineral has been thought most necessary,) than will the symptoms above enumerated give place to the treatment specified. I shall now make reference to one or two cases.

Catherine Ross, æt. 40, the cook of a gentleman living in Temple-st. in this city, came to me in March last, complaining of what she termed "*a violent working in her stomach.*" Her alarm and despondency about herself seemed to be very great; she spoke in a low, under-tone voice, and took repeated sighs; she had had, she said, "*this working of her stomach,*" with intermissions, for a length of time, and appeared now like one apprehensive that, from some aggravation of her ailment, it was quickly about to become fatal. I asked after her general state of health, especially as connected with the functions of her digestive organs, but could not account for her extreme alarm. The heart's action was undisturbed; the pulse at the wrist perfectly regular; and pain no where complained of: still she seemed to watch every word and look with eagerness, and intimated that she thought she would have died the preceding night: there was nothing hysterical in her manner. Placing my hand upon the epigastrium, I discovered a considerable fulness there, and the aorta pulsating violently; the pulsations were strong, regular, and forcible; and the patient telling me, at the moment, that her feet were swelled, I felt almost assured that I had got an aneurism to deal with. A more patient investigation, however, convinced me of the contrary; the jerking

beat of the artery extending along the vessel, towards the umbilicus, was not like the gradual, irresistible heaving of an aneurism. The sound conveyed by the stethoscope was amazingly loud and abrupt, but with more of a whizzing than a hoarseness ; the swelling was not elastic, and amounted more to a general fulness than a distinct tumour : above all, the pulsation was variable in its character, being much more aggravated immediately after noon, than at any other hour of the day.

Until I felt an assurance that aneurism did not exist, I almost dreaded that the woman would have suddenly expired, from the extreme agitation and despondency marked in her countenance and manner. She was immediately cupped, to six ounces, (a larger quantity could not be procured,) and ordered a blue pill at night, and a rhubarb draught, with magnesia, the following morning ; and the day but one after, not finding her relieved, eight leeches were applied to the epigastrium, and the following pills directed :

R. Pil. Hyd.

Ext. Hyosciami āā ʒi.

Pulv. Ipecacuanhæ grs. v. ʒ.

Ut. ft. massa, quam divide in pilulas decem : cap. unam nocte manequē ad ptyalismum.

The bleeding by the leeches was profuse, having been kept up for some hours by means of hot, dry cloths, and slight relief followed. In the course of three or four days, the same number of leeches were again applied, and the pills continued ; from this period her recovery was rapid, the violent pulsations entirely ceased, and a complete restoration to health followed.

The following are some particulars in reference to some cases communicated by my father, who, until within a late period, had been extensively engaged in the practice of medicine in the West of Ireland, to whom I am also exclusively indebted for the plan of treatment above adduced. I extract from letters at present before me.

“ Ballina, October 29th, 1835.

“ I was called upon, two nights ago, by Mr. Atkinson, of this town, to see Mr. ——’s youngest sister ; she is affected with a great throbbing of the aorta in the epigastric region, and towards the umbilicus, with some fulness there, and pain on pressure ; her head is greatly engaged, the appetite impaired, and the digestive organs generally deranged ; the pulse at the wrist is small and regular. I find that her sister, of whose death you may recollect some time ago hearing, was affected in a precisely similar manner, and died of hydrocephalus. Previous to my visiting Miss ——, Mr. Atkinson had, with his usual intelligence, bled her from the arm, had had leeches to her temples, and a liniment of croton oil rubbed over the epigastrium and between the shoulders. The bowels, also, had been moved by the blue pill, followed by an infusion of salts and senna. This has long been, as you are aware, part of my own practice in such cases. The symptoms, however, remained until this time unrelieved ; so I directed the blue pill, with James’s powder, to be given, night and morning, until the mouth became sore ; and to-day, finding this effect not as yet produced, I advised an additional pill in the day to be administered ; and if there be not a speedy amendment, I shall probably have recourse to mercurial inunction.”

In a postscript he adds :—

“ October 30th.

“ I visited Miss —— last night ; she complained greatly of weight and uneasiness in head, particularly when she attempted to raise it off the pillow. The head was, nevertheless, cool, the pulse small, and only sixty-eight in a minute. Here, then, was a case requiring some consideration : the patient had, already, been rather actively treated ; her pulse was small, and her frame weak and emaciated ; nevertheless, I took about ten ounces of blood from her arm, which afforded her very great relief, and the blood was highly buffed. I expect that the

mercury will now speedily take effect, and then I hope for her recovery.”

“ Ballina, November 5th, 1835.

“ Miss —— is rapidly recovering, the bleeding had the happiest effect upon her, although the pulse, as I mentioned to you, was no criterion for the practice, being small, and only sixty-eight in the minute. I got her speedily under the influence of mercury by means of the blue pill, and inunction, leeches were also applied to the pit of the stomach, and croton oil liniment again rubbed between the shoulders; she has been kept strictly upon an antiphlogistic regimen. Since the mouth became sore, the sense of weight and fulness in the head have vanished, and the throbbing of the aorta at the pit of the stomach has entirely ceased. I have already mentioned to you having met with several such cases, particularly among females in this country, among others I remember that of Miss R —— whom I saw in consultation with my friends Dr. M'Hugh of this town, and the late Drs. Ormsby and Knox of Killala, (in the year 1824.)* It was supposed at the time that she laboured under aneurism, and the symptoms were certainly deceptive. She had been affected with epigastric pulsations for twelve months, and they were at that time so violent, that it was confidently affirmed she would one day drop down suddenly from a rupture of an aneurismal tumour; some objections were even made to a mercurial plan of treatment, as being likely to expedite this effect. The case, upon the whole, was rather an urgent one, the pulse, which is usually undisturbed in these cases, was above 100, and there was emaciation with lowness of spirits, and an occasional sense of faintness. We bled her to about sixteen ounces, had recourse to repeated leeching, and directed blue pill, combined with the extract of cicuta, and hippo, which was continued until

* This was the year before Dr. Baillie's work, above referred to, had been published.

her mouth became affected, this treatment was soon attended by a rapid and complete recovery.

“ I met with but one case of real aneurism in the epigastric region ; it was in consultation with Dr. Carter of Sligo, and the disease was readily detected : the pulsations were so strong that they could be distinctly noticed above the bed-clothes. At the time I first saw this patient, who was an elderly lady, she was labouring under inflammation of the trachea, which gave way to blood-letting, and other antiphlogistic means, but the aneurism continued to increase, and proved rapidly fatal.

“ R. F.”

The state of the system in which violent epigastric pulsations occur, is not, as I have attempted to shew, one of pure nervous debility, nor one in which the patient's strength will be restored by tonics, his emaciation removed by generous food, nor his anxiety and alarm dispelled by wine, for the debility being generated by a morbid cause, is not real, but apparent, although incapacitating the sufferer from any useful or active employment. I do not, however, mean to affirm by these, or any other remarks which I have made, that there may not be found many inordinate arterial pulsations, both in the abdominal and other regions, connected with a state of pure nervous debility, and demanding the use of tonics, shower baths, and generous diet, although I scarcely believe these cases to be so numerous, or this treatment so extensively justifiable as is generally imagined. In the present paper I have had entirely in view those cases of epigastric pulsations connected with the chain of morbid sympathies which I have attempted to describe, characterized by a sense of vital depression, and depending upon a state of local congestion, or even in some instances of subacute inflammation.

The following conclusions are perhaps in some degree justifiable by what has been said.

1st. That violent pulsations of the aorta in the epigastrium, constitute an affection *not* “ *of little importance,*” and one that is attended with actual, not imaginary suffering.

2nd. That this affection is not a *nervous* one in the received sense of the word, at least does not indicate a state of general nervous debility.

3rd. That it is not an effect of which dyspepsia is the cause, but that these two, with many others, are conjoint effects, or links in a chain of morbid sympathies, all dependent on some common cause.

4th. That the several causes enumerated by authors, have led to confusion in estimating the true nature of the complaint, while the proximate cause, which is probably alike in all cases, has not been properly distinguished.

5th. That this proximate cause appears to be a deranged condition of the great nervous centre of the sympathetic, of its branches, or its anastomoses.

6th. That this hypothesis satisfactorily explains all the morbid phenomena of epigastric pulsations.

7th. That this hypothesis is corroborated : first, by the fact that some of the phenomena, *e. g.*, sense of faintness, sense of vital depression, extreme anxiety, prostration of strength, &c. are (in degree) like effects with what we know to follow from a direct lesion of the nervous centre, as evidenced by a blow upon the epigastrium ; and secondly, by the fact that the carotid arteries form that portion of the vascular system, which, next to the aorta, is most subject to increased pulsations ; at the same time that these vessels are, in some measure, circumstanced with respect to the large cervical ganglia, and their anastomoses with cerebral and spinal nerves, *as is* the aorta with respect to the plexuses in *its* vicinity.

8th. That the deranged condition of the great nervous centre of the sympathetic, its branches, and its anastomoses, is owing to a state of visceral congestion, or sub-acute inflammation ; or is at least in some manner associated with an over fulness of the vessels in this region.

9th. That those cases of epigastric pulsations which are caused by tumours pressing upon the course of the aorta, operate

not merely by diminishing the vessel's calibre, but by irritating its coats, thus *likewise* producing morbid impressions upon the nervous tissues of the artery.

10th. That the state of the system in general is not what is commonly denominated "*below par*;" on the contrary, that there is rather a tendency to vascular fulness, which is proved by a very frequent determination of blood to the head; 2nd, by the vessels relieving themselves by capillary exhalation, as in the case of hydrocephalus; 3rd, by the relief which general and local blood-letting constantly afford.

Lastly, that the affection is not only entirely within our control, but curable upon the simplest principles of medical science, (always, however, premising, that the coats of the vessel have not undergone any particular organic change.)

As to any changes which the aorta may undergo when these inordinate pulsations remain unrelieved, I have nothing from personal observation to advance: in the case which I have alluded to as terminating fatally by hydrocephalus, no post mortem examination was held. Dr. Baillie thought that the coats of the artery underwent no change, nor do I undertake to refute the opinion; but it appears unlike nature's *usage*, that protracted and irregular actions should be sustained by any organic structure, without that structure undergoing in time some corresponding change; this we see continually exemplified in the hypertrophy of muscle, the development and thickening of bursæ, the conversion of ligament into bone, and the production of cardiac and pulmonary diseases from palpitations and sympathetic cough, &c. &c. Perhaps some *known* lesion of the aorta (which, however, I shall not attempt to particularize) may be in some degree ascribable to this vessel's occasional inordinate pulsations.

BIBLIOGRAPHIC NOTICES.

An Exposition of the Signs and Symptoms of Pregnancy, the Period of Human Gestation, and the Signs of Delivery.
By WM. F. MONTGOMERY, A. M., M. D., M.R.I.A., Vice-President, and Professor of Midwifery, in the King and Queen's College of Physicians in Ireland. 8vo. 1837.

THE announcement of a work by Dr. Montgomery, on a subject to which we know he has paid close attention for many years, excited no inconsiderable expectations in our minds, and we gladly confess, that a perusal of the work itself, has completely fulfilled such expectations. It is distinguished by great research, and extensive original investigation. Whilst due regard is shewn to the labours and opinions of those whose names are immortal in medical literature; the author has felt the incompleteness of their descriptions on many points, and has laboured with untiring zeal to supply this deficiency. The style is clear and intelligible, avoiding with rare felicity the extremes of carelessness and pedantic precision.

The volume consists of three dissertations:—On the Signs of Pregnancy; the Duration of Gestation; and the Signs of Delivery.* The former is the more important and elaborate, and is illustrated by a number of engravings of great beauty and interest. The series of plates exhibiting the changes which take place in the nipple and areola during pregnancy, taken from the same person at the commencement of six successive months dating from the third, is of great value, and admirably illustrates the author's minute and accurate observations on that subject. Again, we have the question of the character and changes of the corpus luteum, described in a series of engravings so care-

* We must not omit an old friend in a new dress; viz. Dr. Montgomery's essay on the Spontaneous Amputation of the Limbs of the Fœtus, illustrated by woodcuts, which is added to the other contents of the volume.

fully executed, and so faithful, that we might almost dispense with the letter press.

To return, however, from the plates to the essays themselves, of which we propose to give an analysis. In the "Exposition of the signs of pregnancy," before proceeding to the consideration of the individual phenomena, the author commences by "some general observations, on the effects produced on the female system by that condition, whether resulting from the necessary alterations in the component structures and size of the uterus, and the consequent change of relations between it and other organs, or from certain physiological phenomena connected with the train of actions originating in conception, and thence necessarily continued for the evolution and development of the new organization;" with some practical considerations and details of precautionary treatment of pregnant females. The whole chapter is good; but we especially recommend that part where the author speaks of the inconveniences which necessarily arise during pregnancy, and which occasion uneasiness to the patient, and very often unavailing attempts at cure on the part of the medical attendant.

After considering some of the peculiarities incident to pregnancy, and the legal relations, (some of which laws affecting pregnant woman are a disgrace to a nation calling itself Christian,) the learned Professor proceeds to investigate in detail the proper signs of pregnancy, which he divides "into three classes; considering the first and second groups as *presumptive*, the third as *probable*, and the fourth, fifth, and sixth as *unequivocal*."

Among the *presumptive* signs are suppression of menstruation, nausea, and vomiting, salivation, and alterations in the breasts; whilst the increase in the bulk of the uterus constitutes the *probable* evidence, and the information derived from its contents, whether retained (giving rise to foetal motions and sounds) or expelled, and from a *post-mortem* examination, is the *unequivocal* proof.

Now as our limits quite forbid a minute analysis of each chapter, we shall endeavour to give a tolerably full account of certain points which are more adequately detailed than in any other work with which we are acquainted.

Two remarkable changes take place in the breasts upon conception, their bulk is enlarged by swelling of the glandular substance, and the nipples and areolæ are deepened in colour, &c.

As to the enlargement, it commences soon after the suppression of the menses, and generally continues until the termination of gestation, although it is less remarkable in some cases, in consequence of a diminution of the softer tissues.

The breasts thus enlarged are extremely painful, probably

from the somewhat rapid distention of the capsule of the gland. As to the period at which the changes are first perceived, Dr. Montgomery observes, that "there is considerable variety," "for whilst in some instances they may be recognized very soon after conception," "in others the changes are hardly perceptible until gestation is far advanced, or even drawing to a close." In general, however, we may expect to find these sympathies (except the secretion of milk) becoming developed when two months of pregnancy have been completed. The value of this change, taken alone as a "sign of pregnancy," is perhaps less than would be anticipated; for,

"We must recollect that the changes of form and size may be the result of causes unconnected with conception. In many women the breasts enlarge, merely in consequence of marriage, and the habits thence arising; in others it may happen from the person becoming fat; it may be caused by an accidental suppression of the menses, or their retention by an imperforate hymen, or other causes capable of distending the uterus, under which circumstances, especially in women of a sanguine temperament, the breast often become both hard and painful."—p. 57.

On the other hand, in some women very little change takes place during gestation.

"I lately attended," says the author, "a lady whose health had been delicate during her pregnancy, and no perceptible change took place in the breasts until the fifth day after delivery."

Cases of this opposite character have so repeatedly occurred to us, that we turn with pleasure to another change, which is more distinctive as being more exclusively the result of impregnation, we allude to the alteration in the areola, the description of which we shall extract from the work before us.

After quoting the changes noted by different authors, Dr. Montgomery observes:—

"These changes do not take place immediately after conception, but occur in different persons after uncertain intervals; we must therefore consider, in the first place, the period of pregnancy at which we may expect to gain any useful information from the condition of the areola. I cannot say positively what may be the earliest period at which this change can be observed, but I have recognized it fully at the end of the second month, at which time the alteration in colour is by no means the circumstance most observable, but the puffy turgescence (though as yet slight) not alone of the nipple but of the whole of the surrounding disk, and the development of the little glandular follicles, are the objects to which we should principally direct our attention, the colour at this period being in general little more than a deeper shade of rose or flesh colour, slightly tinged occasionally with a yellowish, or light brownish hue.

“ During the progress of the next two months the changes in the areola are in general perfected or nearly so, and then it presents the following characters, a circle round the nipple, whose colour varies in intensity according to the particular complexion of the individual, being usually much darker in persons with black hair, dark eyes, and sallow skin, than in those of fair hair, light coloured eyes, and delicate complexion. The extent of this circle varies in diameter from an inch to an inch and a-half, and increases, in most persons, as pregnancy advances, as does also the depth of colour. I have seen the areola at the time of labour almost black, and upwards of three inches in diameter, in a young woman of very dark hair and complexion ; while in another instance lately seen by the writer, its breadth around the base of the nipple did not at any time of gestation amount to a quarter of an inch, and at first was not more than an eighth ; this circle, however, narrow as it was, was studded at nearly regular intervals with the glandular tubercles, which were not unlike a string of beads. In negro women the areola becomes jet black, with somewhat purplish shade through it.

“ In the centre of the coloured circle, the nipple is observed partaking of the altered colour of the part, and appearing turgid and prominent, while the surface of the areola, especially that part of it which lies more immediately around the base of the nipple, is studded over, and rendered unequal by the prominence of the glandular follicles, which varying in number from twelve to twenty, project from the sixteenth to the eighth of an inch, and lastly, the integument covering the part appears turgescient, softer, and more moist than that which surrounds it, while on both there are to be observed at this period, especially in women of dark hair and eyes, numerous round spots, or small mottled patches of a whitish colour, scattered over the outer part of the areola, and for about an inch or more all round, presenting an appearance as if the colour had been discharged by a shower of drops falling on the part. I have not seen this appearance earlier than the fifth month, but towards the end of pregnancy it is very remarkable, and constitutes a strikingly distinctive character exclusively resulting from pregnancy ; the breasts themselves are at the same time generally full and firm, at least more so than was natural to the person previously, and venous trunks of considerable size are perceived ramifying over the surface, and sending branches towards the disk of the areola, which several of them traverse ; along with these vessels the breasts not unfrequently exhibit, about the sixth month and afterwards, a number of shining, whitish, almost silvery lines like cracks ; these are most perceptible in women, who, having had before conception very little mammary development, have the breasts much and quickly enlarged after becoming pregnant.”—p. 60.

In a note upon the glandular follicles, the author remarks, that—

“ Although by many considered as merely sebaceous glands, they

have really a much more important character, and more intimate connexion with the peculiar structure and functions of the breasts, and hence might naturally be expected to display an active sympathy in any condition of the system which called into action the peculiar function of these organs, which is the secretion of milk for the support of the new being; for which purpose certain previous changes in the glands and ducts are necessary. Now it appears that these areolar tubercles are intimately connected with the lactiferous tubes, some of which can be traced into them, and opening on their summit, so that in pregnant women a sero-lactescent fluid may be often distinctly perceived issuing from them; and in nurses they have been observed to pour forth drops of perfect milk. (*Morgagni*.) In addition to this, it appears from the more recent investigations of Meckel and others, that each of these follicles is, in common with the nipple and surrounding areola, furnished with very small sebaceous glands, which lie around its base; the ducts of which, from one to four in number, are found opening on the surface of the tubercle.”—p. 61, *note*.

If any one after reading the graphic description we have extracted, can possibly have any difficulty in picturing to himself these successive changes, all he has to do is to turn to the plates, and he will find one for the third, and each succeeding month of gestation, which exhibit very beautifully the alterations noted in the text. The reader will also remark two engravings of the nipple in the sixth month; one of the right, and the other of the left breast; shewing that occasional variations are observed even in the same patient. He will also remark, that the colour of the areola at the ninth month is a shade lighter than it appeared at the eighth month. We notice this as an exquisite illustration of the truth of the mammary sympathy with the uterus; the explanation is at once easy and satisfactory. The child died at the eighth month, and was retained in utero till the completion of the usual term.

But to proceed.—Two questions arise on this as well as upon considering every other sign of pregnancy; *first*, whether these changes in the nipple and areola can be produced by any other cause than pregnancy, and *secondly*, whether gestation is ever completed without them. Dr. Montgomery distinctly states, “that no other cause is capable of producing them,” and as far as our own observations have gone, they confirm the Professor’s opinion, with this limitation, however, that there are certain cases in which the glandular follicles seem unusually prominent, that in which no darkening of the areola is present, the patient not being pregnant. We have repeatedly seen this.

As to the *second* point, it is admitted that the dark colour may be absent during the whole period of gestation, and Dr.

M. refers to several such cases occurring in his practice. He also points out an especial cause of the subsidence of the mammary sympathies, in the death of the foetus long before its expulsion. But though one peculiarity be absent, it is rare, it must be confessed, to find the breasts exhibit no sign of uterine sympathy. So that we may conclude, that as no other cause than pregnancy will produce all the mammary changes, their concurrence amounts to proof; but that as some may be absent, and yet pregnancy occur, the absence of one does not disprove the existence of pregnancy. There are some circumstances carefully pointed out by the author, as likely to mislead our judgment, as for example, if a woman be presented for examination after a recent abortion, her breasts will exhibit well-marked areolæ, &c. although the uterus be empty. In nurses, also, the characters are kept up for a very long time. We ourselves saw a case of this kind some time ago. A countrywoman, after suckling her own child for two or three months, undertook the charge of a nurse-child, to whom she supplied nourishment for nine or ten months, and at this time, the mother of the nurse-child having been again confined, she weaned the first child, and suckled the second for more than eight months, and to the last the areola presented its distinctive characteristics.

The value of the presence of milk in the breasts as a sign of pregnancy, is much diminished by its having been secreted in the breasts of males, and of females who had never been impregnated on the one hand, and on the other by the continuance of milk from one delivery to another. Nevertheless, says Dr. M.—

“We should attach great consequence to the presence of milk in the breasts, and if found in connexion with others of the rational symptoms of pregnancy, it ought to go a great way in confirming our belief in the existence of that condition, especially if occurring in a woman who had never borne a child, or been pregnant before. But altogether it is a sign which we cannot expect to make in general available as a guide for forming our opinions in a doubtful case; because, in most instances, milk is not secreted until after delivery; and when it does form during pregnancy, it is not until a period has arrived which presents other modes of judging less liable to uncertainty.”—p. 74.

Chapter the fifth is occupied with an investigation into the motions of the foetus, quickening, &c., opening with a just objection against the use of the term quickening, if by that we mean the denial of vitality to the foetus at any period of utero-gestation. It is true that our laws recognize a difference between pregnancy before and after quickening; but this is equally wrong in morals and physiology; nay, even this reading would appear

to be a corruption arising from carelessness ; for, on referring to the legal notes appended to Dr. E. Kennedy's excellent little work, (p. 270,) we find that Sir Matthew Hale, in defining the conditions of the law, uses the expression, "*quick with a quick child.*"

Dr. Montgomery decides upon the uncertainty of this 'sign,' from our having to depend upon the information of the patient, who may be deceived herself, and so deceive us. He also mentions a very remarkable case where the motions of the foetus could be distinctly felt by placing the hand upon the abdomen, although the lady herself had no consciousness of any such motion. We do not quite agree with the author as to the argument to be derived from this case.

That the foetal movements may intermit for some space of time after having been distinctly perceived, is within the experience of all, from whatever cause it may proceed.

"Another source of error would of course be found in a power which it is asserted some women possess, of simulating the motions of the child by certain actions of the abdominal muscles."—p. 84.

These circumstances render it uncertain as a 'sign,' unless corroborated by other and more unerring phenomena.

The period at which quickening most frequently takes place is, according to the author, "between the end of the twelfth and sixteenth weeks after conception."

Chapter sixth treats of the enlargement of the uterus, and the state of the umbilicus.

Chapter seventh is occupied with the consideration of the changes in the uterus, state of the os and cervix uteri, size of the uterus, its contents, situation, and consistence.

Each chapter contains most valuable matter, and will amply repay an attentive perusal ; but as our space is limited, we must hurry on to some very interesting description in the latter part of the essay. For this reason we shall pass over the author's excellent, though short remarks on the evidence afforded by auscultation, and proceed to the consideration of another valuable source of information, which consists in a careful examination of certain matters occasionally expelled from the uterus. These are of various kinds ; some the result of impregnation, others independent of it. The author (chapter eighth) speaks of an early ovum, of moles, hydatids, the dysmenorrhœal membrane, &c. After describing the difficulty, and the care required in all investigations of the ovum, our attention is directed to the characters of the decidua, which, more or less, covers the ovum when expelled entire.

“ It is distinguished by its soft, rich, pulpy appearance, and strong red color; its external or uterine surface being rough and unequal, and when well freed from the coagulated blood, and immersed in water, exhibiting numerous small, round foramina, capable of admitting the head of a pin; while its internal surface is smooth, generally thrown into slight, soft folds, and exhibits little or no appearance of foramina, any that may be perceptible being of very minute size. These characters, which are almost always to be recognized without difficulty, are sufficiently distinctive of the structure under consideration; but there is another, not hitherto noticed by any one, as far as I am aware, although it is one of the most remarkable features in the organization of this peculiar product. Repeated examinations have shewn me that there are, in the external surface of the decidua vera, a great number of small cup-like elevations, having the appearance of little bags, the bottoms of which are attached to, or imbedded in its substance; they then expand or belly out a little, and again grow smaller towards their outer or uterine end, which, in by far the greater number of them, is an open mouth when separated from the uterus; how it may be while they are adherent I cannot at present say. Some of them which I have found more deeply imbedded in the decidua were completely closed sacs. Their form is circular, or very nearly so; they vary in diameter from a twelfth to a sixth of an inch, and project about the twelfth of an inch from the surface of the decidua. They are not confined to any one part of the surface of the decidua, but I think I have generally found them most numerous and distinct on these parts of it which were not connected with the capillary rudiments of the placenta, and at the period of gestation which precedes the formation of the latter as a distinct organ; they are best seen about the second or third month, and are not to be found at the advanced periods of gestation.”—p. 133.

Dr. Montgomery's experience seems to lead to the conclusion, that moles (properly so called) are the result of sexual intercourse, and of this being the case with uterine hydatids, he entertains no doubt. The dysmenorrhœal membrane differs from an ovum in being devoid of all appearance of organization—of the foetus or its remains,—and being of frequent recurrence.

Chapter the tenth treats of certain accidental circumstances; idiosyncrasies; state of the blood, urine, and pulse.

Chapter the eleventh, of pregnancy under unusual circumstances of age, disease; spurious or simulated pregnancy, conception without consciousness, from imperfect intercourse; secondary ovum.

We must content ourselves with merely enumerating the contents of these chapters, and forthwith proceed to the twelfth, which is occupied with considering the information to be gained by a *post-mortem* examination. There can be no doubt but the ovaries are the seat of the most distinctive change after conception. The size of the ovary is increased by the curious

structure which surrounds the Graafian vesicle, and which, with the shell of the vesicle, has received the name of corpus luteum. As we are indebted to Dr. Montgomery for a more accurate knowledge of this change of structure, than we had heretofore, we shall give his description at tolerable length.

“ If we examine the ovaries of a pregnant woman, especially if her conception has been recent, we observe, that the one which has supplied the germ differs, in several remarkable particulars, from its fellow of the opposite side; it strikes the eye at once as being larger, rounder, and more vascular; to the touch it feels fuller and softer: we perceive further, that this increase of size of the one, is not so much the result of an increased development of the whole substance or body of the organ, as of the addition to it, at one part, of a tumour projecting, more or less, from its natural outline, as we find in the eye, where the circumference of the cornea projects from the outline of the globe, the segment of a smaller circle being superimposed on that of a greater.”—p. 220.

“ When we examine the protuberant part of the impregnated ovary, we find that the increased vascularity is principally confined to its limits, where we perceive, creeping on, or near the surface, a few small, or thread-like and convoluted vessels, and we generally find the colour of this part quite different from the rest of the organ; appearing as a deep, or dull brownish yellow, seen through a slightly reddish medium, and somewhere on the surface of the prominent part, we observe a distinct cicatrix, or appearance as of a rent imperfectly united; to a small extent around which, the peritoneal coat appears as if abraded or removed by slight superficial ulceration; and here it is that the twining vessels just mentioned, are most distinctly observable.”—p. 221.

If now we make a section through the most prominent part, we shall divide and expose the corpus luteum, which presents the following characteristic appearances.

“ In form and size it is almost always more or less oval, or fabiform, with its longer axis varying from four to five-eighths of an inch; and the shorter, from three to four-eighths; its thickness is generally less than its breadth.”—p. 223.

The size varies in different examples, and at different periods after impregnation,

“ But the general rule remains unaffected: viz. that the corpus luteum is largest at early periods of pregnancy, and afterwards gradually diminishes in size; slowly during gestation, but more quickly after delivery. Its structure is obvious, and strikingly glandular, having a lobulated appearance, with slight convolutions, resembling not a little a section of the human kidney; or, as some one has

said, it is like a miniature of the particular section of the brain, called by anatomists *centrum ovale*.

“ *It is very vascular*, small vessels being very frequently visible without any preparation; but if fine coloured injections have been previously thrown into one of the branches of the spermatic arteries going to the ovary, the vessels of the corpus luteum will be filled with the colouring matter, and are to be seen, very distinctly, running from its circumference towards its centre. The injection will also pass, readily and freely, into the little serpentine vessels on the surface of the ovary, over the corpus luteum, and around the rent in the external covering.

“ Its colour is, as its name implies, a dull yellow, very similar to that of the buffy coat of the blood; exhibiting generally, when recently exposed, a slightly reddish tinge, *ex flavo rubens*.—Haller. Its centre exhibits, either a cavity, or a radiated or branching white line, according to the period at which the examination is made; if within the first three or four months after conception, we shall, I believe, always find the cavity still existing, and of such a size, as to be capable of containing a grain of wheat at least, and very often of much greater dimensions; this cavity is surrounded by a strong white cyst, (the inner coat of the Graafian vesicle,) and as gestation proceeds, the opposite parts of this cyst approximate, and at length, close together; by which the cavity is completely obliterated, and in its place, there remains an irregular white line, whose form is best expressed by calling it radiated or stelliform. Of this latter appearance, it ought to be observed here, that it is visible as long as any distinct trace of the corpus luteum remains, it forms one of the most essential characters, distinguishing this body from every other that might be confounded with it.

“ After the period of gestation has been completed, or the contents of the uterus prematurely expelled, so that gestation ceases, the corpus luteum soon begins to exhibit a very decided alteration in all its characters, until at length it is no longer to be found in the ovary. The exact period of its total disappearance I am unable to state; but I have found it distinctly visible, so late as at the end of five months after delivery at the full time, but not beyond this period; and the corpus luteum of a preceding conception, is never to be found along with that of a more recent, when gestation has arrived at its full term, but in cases of miscarriage, repeated at short intervals, it may.”—p. 227.

These various states are illustrated by plates as admirable, as the description we have quoted is graphic. The three last figures of plate 11 are very instructive, as pointing out appearances which are frequently mistaken for corpora lutea, but which have nothing to do with them.

As a sign of pregnancy “ the presence of the corpora lutea

is of the very highest value, since in no one instance," says the Professor, "did I ever find a true corpus luteum, except as the product of conception."—p. 210. And consequently its presence is decisive of the question, except in the case already noted, of quick successive abortions and conceptions.

It is with regret that we find that we have exceeded our limits, so that a detailed notice of the concluding essays is impossible; there are some facts and remarks, however, which we cannot pass over, forming, as they do, a valuable addition to the scanty store on record.

In the essay on the Duration of Gestation, when speaking of the possibility of an exact calculation, the Professor relates the following case:

"A lady who had been for some time under my care, in consequence of irritable uterus, went to the sea-side at Wexford, in the month of June, leaving her husband in Dublin; a temporary separation being considered essential for the recovery of her health. They did not meet until the 10th of November, on which day he went down to see her; and being engaged in a public office, he returned to town the next day. The result of this visit was conception; before the end of the month she began to experience some of the symptoms of pregnancy; and when she came to town on the 22nd of February, she was large with child, and had quickened on the 28th of the month preceding. Her last menstruation had occurred on the 18th of October. She went on well through her pregnancy; and the writer was called upon to attend her in labour on the 17th of August, when she gave birth to a healthy child, after a labour of a few hours duration. Here the gestation exceeded nine calendar months by just one week, making exactly 280 days from the time of conception."

Two other cases are quoted of 281 and 280 days.

As to the duration of gestation, the author looks upon it as "not exempt from variety;" "neither can he imagine why gestation should be the only process connected with reproduction, for which a total exemption from any variation in its period should be claimed."

Two circumstances immediately affecting the accuracy of our calculations as to the duration of gestation, are very appositely stated in the essay before us; those are, first, the fact that "impregnation does not immediately take place on coition, but that an uncertain interval of time elapses between the act of intercourse and the communication of the vivifying influence to the germ in the ovary;" and second, that a certain time (varying in different cases) will be occupied,

"In the transfer of the ovum, from its seat in the ovary, along

the fallopian tube into the cavity of the uterus ; for when we come to reflect on the successive steps of that process, we find, that there is not one of them free from a liability to be interrupted, or retarded, in permitting or assisting the transmission of the germ. Thus the ovulum may lie at a greater depth than usual in the substance of the ovary, which may also have had its texture thickened and indurated by the effect of previous inflammation, or the same change may have taken place, in the proper coat of that body, or in its peritoneal investment, which will then still further delay the escape of the ovum by resisting the natural tendency to burst under the increasing distention, and by rendering a still longer time necessary for the accomplishment of the requisite absorption."—p. 270.

Two cases are related by Dr. Montgomery, where pregnancy was undoubtedly protracted beyond the usual time. One of them we shall give, and with it conclude our extracts from this admirable volume.

" In January, 1835, in consultation with Dr. Beatty, I saw a patient, who in reply to a question as to her having come to her full time, said, that she had long passed it ; and on being questioned, as to why she thought so, she stated that she had seen her husband but once during the previous year ; that he had visited her on the 18th of March, and was obliged to leave her the next day ; soon afterwards she began to experience the symptoms of pregnancy, but her labour did not commence till the 4th of January. The period of gestation, in this case, must have amounted to at least 291 days."—p. 275.

After the quotations we have given, illustrative of the design and execution of the work, we feel that further commendation is really unnecessary. If our opinion be of any value, we unhesitatingly avow our conviction, that the work ought to be in the hands of every one who aspires to the character of a physiologist, medical jurist, or practical physician.

A Treatise on the Diagnosis and Treatment of Diseases of the Chest. Part I. Diseases of the Lung and Windpipe.
By WILLIAM STOKES, M.D., M.R.I.A., &c. &c.

WE need not to tell our readers that the present work is hailed with delight, both by those who love their profession as a science, and by those who more humbly, but not less usefully cultivating it as a practical art, seek in each new page that is presented to them, the means of curing or alleviating disease.

Diseases of the lung and heart present a striking singularity in the history of medicine. On other diseases we obtain information, and often of the most valuable kind, from the oldest observers, and we perhaps seek, and in vain, for clearer description or better diagnosis from modern writers. But not so in diseases of the chest. All the works devoted to those diseases prior to Corvisart and Laennec, may be regarded as little better than a blank, and we seldom deem it necessary to go back beyond what we may consider as our own day, for information. Since the publication of Laennec's imperishable volumes, comparatively little had been added; and this is scarcely to be wondered at. It would have seemed almost unpardonable heresy to have criticized or to have added to them, and accordingly, until the appearance of the present work, we have had little more than compilations, in various shapes and forms, of the original. It required power and talent of no ordinary range to add to the production, to supply the omissions, and to correct the errors of such a master; we believe the first part of the work before us will be found to have achieved such objects.

As the natural result of Laennec's discoveries, many of the would-be followers of Laennec neglected to attend to, or never knew what Laennec himself so strongly inculcated, and what Dr. Stokes, in his very first pages, so strongly impresses upon the readers, that,

"Physical signs only reveal mechanical conditions, which may proceed from the most different causes, and that the latter are to be determined by a process of reasoning on their connexion and succession, on their relation to time, *and their association with symptoms.*"

The inevitable consequence of the neglect of these considerations was, that discrepancies were frequently detected between the diagnosis founded on physical signs alone, and that obtained from symptoms, and whenever discovered to be disadvantageous to physical signs, were loudly trumpeted forth by the opponents of auscultation. The error, however, was but of temporary duration, and has been even of value, for the knowledge of it fixes the more firmly upon the mind of the physician, what Dr. Stokes declares to be one of the objects to be kept steadily in view—

"The close connexion of the study of physical signs with that of symptoms, so as to illustrate their mutual bearing on diagnosis, and remove that unjust opprobrium thrown on the advocates of auscultation, that they neglect the study of symptoms."—*Preface.*

While this object is, however, kept steadily in view, it is equally necessary to remember, that physical signs are of them-

selves frequently of paramount importance. The remarks on this head should never be forgotten.

“ It is in the curable diseases that their great value is seen. Indeed, in a large proportion of such cases, *the first effect of treatment is to render disease latent, and to cause an absolute necessity for the study of physical signs.*”

It is, we fear, only bitter experience that will impress on the minds of too many practitioners the value of the information conveyed in the above short sentence. We might dwell in general terms upon the evils that have arisen from neglect of it, where those ignorant of physical signs or deriding them, have presumptuously pronounced, after acute or inflammatory attacks, that all danger had passed away, because general symptoms indicated no internal disease, and where only too late for relief, the treacherous internal disease has been detected, the continuance of which, and its progress, could have been arrested, had physical signs been attended to. Instead of dwelling generally upon such evils, we shall mention two instances, which will, perhaps, better produce the effect we desire, viz., the impressing on our readers the necessity of ever bearing in mind the short paragraph we have quoted. A young gentleman, a member of our profession, while preparing for his examination, was attacked with symptoms of pleuritis. The means adopted were not very energetic, but in a very few days the pains and general symptoms had abated so much that he resumed his studies, and from a supposition that the trifling dyspnoea that remained, was but the result of debility, full diet, wine, and quinine constituted his treatment. We saw him in this state. The experienced auscultator will at once anticipate what had taken place. The serous membrane had relieved itself from inflammatory action by pouring out a copious effusion, and consequently the constitutional symptoms had subsided. The line of treatment was altered, amendment followed, and removal to the country was enjoined. A relapse that took place in the country was, through unaccountable obstinacy, again treated in the very reverse of what was right; effusion increased in amount. The subject of this short description only returned to town to survive a few hours the operation for empyema, the only chance left to prolong or save his life. In the second instance, a gentleman was attacked with acute rheumatism, and during the attack, was seized several times with what were considered spasmodic attacks of dyspnoea. The rheumatism subsided. We saw this gentleman on his return from a watering place, in good spirits, and apparently in best health; but the evil-boding bruit de soufflet was steady and

constant in the breast. We warned him of his danger ; the warning was disregarded, and he was unfortunately encouraged in slighting it by some who ought to have known better. We saw him at the end of twelve months : he came to town to die. His feet were swoln ; he had violent palpitations, and for several weeks he had not known what it was to lie down for an hour's rest. We had in this case the advantage of Dr. Stokes's counsel. It was not yet too late to do much, and we have the gratification of knowing that this gentleman, whose life is of great value, is free from pain or suffering, and is once more in the enjoyment of such health as to enable him to undergo nearly all the duties of a very active profession. Had the observation above quoted been attended to, " that the first effect of treatment is to render disease latent, and to cause an absolute necessity for the study of physical signs ;" in the instances narrated, life would almost certainly have been saved in the one, and great suffering have been repelled in the other. Were it not for the importance of the point under observation we should not have added a word to the quotation, for we are aware that our readers are anxious to obtain extracts from the work itself. Of such a work, we know that a mere analytical review, inefficient as it may be, will be the most acceptable to our readers.

The first section is devoted to the consideration of the general principles of the diagnosis of thoracic disease, and this chapter contains a masterly view of the peculiarities of the anatomy and physiology of the thorax, which render it so much more capable of furnishing physical signs than either of the other two great cavities. Even the most prejudiced (if there be such) against the study of physical signs will, on perusing it, be irresistibly led to the conclusion of the writer, that—

" If we take a general view of the cranial, thoracic, and abdominal cavities, it would appear that in none of them is the diagnosis of disease, from symptoms, so difficult as in the chest. But further investigation will prove to us that there is no cavity, in the diseases of which, when we combine the study of symptoms, properly so called, with that of physical signs, the determination of the nature, extent, and modification of disease is so easy and certain."—p. 11.

" The introduction of auscultation, and its subsidiary physical signs, has been one of the greatest boons ever conferred by the genius of man on the world. A new era in medicine has been marked by a new science, depending on the immutable laws of physical phenomena, and like other discoveries founded on such a basis, simple in its application, and easily understood. A gift of science to a favoured son, not, as was formerly supposed, a means of merely forming a useless diagnosis in incurable disease, but one by which the ear is converted into the eye, the hidden recesses of visceral disease opened

to view; a new guide in the treatment, and a new help in the early detection, prevention, and cure of the most widely spread diseases which afflict mankind."—p. 40.

We shall not quote farther from this portion, for the whole is woven so closely together that we should extract all or none. The sources of physical signs are described under seven heads, and the cautions to be observed in drawing a diagnosis from one or all laid down with great accuracy and minuteness.

Auscultatory phenomena, furnishing physical signs, are divided into those which furnished, by percussion, can be as well observed on the dead as the living body, and are hence denominated "Passive Auscultatory Phenomena;" and into those, to the production of which, the performance of the living functional movements of the chest is necessary, and are therefore designated "Active Auscultatory Phenomena." The sections on those phenomena, embracing the diseases exercising an influence on them, and the cautions to be observed in drawing inference from them as to the existence of disease, are very full and instructive, particularly the observations on "Comparison," a principle so often overlooked by the young stethoscopist. The first disease taken up by our author is bronchitis in its varied forms. The importance of being well acquainted with it, whether as an idiopathic or secondary disease, can perhaps be scarcely overrated.

"This affection, in its simple or more complicated forms, presents the strongest claims to our attention. In fact, its study furnishes us with a key to thoracic pathology, as in a great number of pulmonary, and even cardiac diseases, the inflammation of the mucous membrane of the lung seems to be the first link in the chain of morbid actions; a circumstance illustrative of the proposition of Broussais, that the various external morbid influences which affect the system are first exercised on one of the surfaces of relation, viz. the skin, the bronchial, and the gastro-intestinal mucous membrane.

"When we reflect on the various forms of this disease, and on the number of secondary affections to which it may give rise, its importance is obvious; and we shall find that many examples of diseases, which have received a separate name, have commenced by this lesion, or are complicated with it. We frequently find it a prominent feature in what have been termed the nervous affections of the lung; we know that it may give rise to dilatations of the air cells and tubes, and to pulmonary emphysema; that it may have been the first lesion in many cases of ulceration of the cartilages; that there is a close connexion between it and inflammation of the substance and the serous membrane of the lung; that many cases of phthisis seem to commence by this affection, and that it may ultimately cause morbus cordis, and all the evil consequences resulting from obstructed circulation."

“ We further find that bronchitis is present, and has a most important share in almost all diseases of the lung, whether acute or chronic. Thus, in most cases of pneumonia, there is distinct evidence of bronchitis; a complication which, according to circumstances, may be of the greatest advantage or danger to the patient. It is a constant complication in pleuritis, particularly of the chronic form; while in phthisis, according to the best pathologists, the bronchial mucous membrane rarely escapes disease. It occurs in Laennec’s emphysema, in many cases of pulmonary apoplexy, in cancer of the lung, and other affections.

“ Further, it is ascertained that bronchitis is the most common result of the sympathetic irritations of the lung. It forms an important part of the phenomena of many of the eruptive diseases, while in fever, taken in its ordinary acceptation, it is exceedingly frequent, and too often the direct cause of a fatal termination. From my experience, I would say, that many patients would recover from fever but for the occurrence of this disease.” —pp. 45-46.

The different forms of bronchitis are classed according to the immediate results of irritation of the mucous membrane and glands.

“ In the first, or most ordinary form, we have a mucous, and afterwards, a muco-purulent secretion; in the second, we have a secretion, bearing the character of lymph, as in some of the forms of croup; in the third, the secretion is principally serous, as in the different forms of humid catarrh and asthma; while in the fourth, there is little or no secretion, a disease which has received the name of the dry catarrh.” —p. 46.

And further, the cases which present themselves, may be either of the primary, secondary, or complicated forms :

“ The primary, those in which the first morbid influence seems to be exercised on the respiratory mucous membrane, and in which the fever, if it exists, may be considered as purely symptomatic: in the secondary, on the other hand, there has been a pre-existing disease elsewhere, which, in general terms, may be stated to be either the irritation of another organ, which acts by sympathy on the lung, or the existence of that general morbid state which has got the name of essential fever, and of which one of the most remarkable pathological characters is, the production of secondary diseases in the gastro-pulmonary mucous membrane, and also in the solid viscera themselves. Thus, in a typhoid fever we have an affection of the bronchial mucous membrane, analogous to the secondary inflammation of the stomach and intestines: a disease which, although not the first cause of symptoms, exercises an important part in the progress, and is not unfrequently a cause of the fatal termination of the case. Lastly, by the complicated

form we mean the bronchial inflammation which accompanies other diseases of the lung, such as pneumonia, pleurisy, pulmonary apoplexy, tubercle, cancer, &c."—p. 52.

Our author commences with the description of bronchitis, and its effects in infants, the infantile bronchitis of Dr. Jöerg of Leipsig, from whose valuable researches, copious extracts are given, and then proceeds to the consideration of "acute primary bronchitis."

"From a consideration of the symptoms and the stethoscopic phenomena in this disease, it seems highly probable, that in the majority of cases, the smaller bronchial ramifications are unaffected. We find that fever is either absent or extremely slight, and that unless with a complication of decided spasm of the lung, we have never any perceptible degree of lividity of the countenance. Further, we almost never observe the occurrence of dropsical effusions, a circumstance which, as far as it goes, points out that no notable obstruction to the pulmonary circulation has occurred."—p. 55.

"But in the more severe form of the disease, we find all the foregoing symptoms greatly aggravated; there may be high fever, with remarkable exacerbations, severe dyspnoea, and difficult expectoration, the mucus being sometimes tinged with blood. It is in this affection that lividity of the face is principally observed, a proof of the imperfect arterialization of the blood.* Cerebral and abdominal congestions may also occur, as has been remarked by Laennec, and dropsical swellings are a frequent result. The disease may pass into congestion and inflammation of the substance of the lung, and in many cases stitches are felt in the sides, which there is every reason to believe, proceed from the occurrence of pleuritis, generally of the dry form, but leaving adhesions more or less extensive according to the violence of the disease.

"This acute stage having continued for a period, the duration of which is extremely variable according to circumstances, the second stage sets in, which is characterized by a change in the nature of the fever; the inflammatory passing more into the hectic type; the countenance becoming pale and shrunken, and the pulse feeble and often rapid. The patient perspires, and a sour smell may be perceived from the surface; the cough continues frequent though less distressing, and is followed by copious expectoration of concocted mucus or muco-purulent matter, and the breathing, though hurried, is generally less laborious than in the acute stage. The patient emaciates, and to a person

* "I have long observed that lividity is much more an attendant on severe bronchitis than on pneumonia with hepatization, or even pleurisy with copious effusion. This I do not put forward as a novel observation, but may remark that it strengthens the opinion, that the aerating power resides more in the bronchial ramifications than in the air cells."

unacquainted with the history of the case, would seem in an advanced stage of suppurative phthisis. There can be no doubt that the recovery of an individual, under these circumstances, has been in many cases described as an example of the cure of phthisis, and particularly in those cases where the expectoration was copious and muco-puriform."—pp. 55, 56.

"*Chronic Primary Bronchitis.*"—Under this head, there is a very full account of the different appearances, which the secretion from the bronchial membrane assumes, and of the changes in the disease, which those varying secretions indicate. The value in diagnosis of a familiar acquaintance with the varied appearances of expectoration in diseases of the lung is of very great importance; and, were we to be asked, which of all the diagnostic signs of lung disease is, of itself, of greatest value? we should perhaps say, the expectoration; an acquaintance with it can only be acquired by constant practice, just as the "tactus eruditus" is acquired by the surgeon. However, in acquiring this, the full and accurate description of our author will be found of the greatest assistance. We should spoil the description by attempting to abbreviate it; we must, therefore, on this head, refer the reader to the work itself. Under the head of "Signs discoverable by Auscultation," the following observation is well worthy of being remembered, not alone in bronchitis, but in many other diseases of the lungs. From want of a knowledge of it, we have seen serious mistakes made, both in diagnosis and prognosis.

"As a general rule it may be stated, that in the acute stage, during ordinary respiration, the louder and more intense the rales are, the more severe is the disease. But to this rule there is one remarkable and important exception, which I first observed in bad catarrhal fevers. In such cases, during ordinary respiration, we may hear little or no rale, and yet the disease be in such a state of violence as to threaten the life of the patient. The reason of this seems to be, that the finer ramifications of the bronchial tubes are so turgid, as that, during ordinary respiration, the air does not enter them with sufficient force to produce a tone. But if, under such circumstances, we make the patient take a forced inspiration, we are astonished at the intensity, number, and variety of the sounds produced. Now, in such cases it commonly happens, that as the patient gets better, the rale, during ordinary respiration, becomes distinct and constant, so that here an increase of rale during ordinary breathing points out a decrease of disease."—p. 72.

"*Acute Secondary Bronchitis.*"—This disease is of even more importance than primary bronchitis, occurring as it does in the progress of other disease, the worst and most dangerous

complication in fever, stealing so treacherously on, and baffling all our skill, if we have not closely watched and promptly met its incursion, and perhaps carrying off our patient at a time when what had seemed the greatest danger was passing away. The forms of bronchitis which are included under this head may be best explained in our author's words.

"I proceed to consider the disease in its secondary form, when we find it either as the result of an influence which seems to act on the whole economy; a specific poison which produces various organic and functional lesions, among which that of the respiratory mucous membrane is by no means the least important; or as proceeding from a sympathetic irritation, the consequence of local disease in some other system. I shall, in the first place, examine into the history of the catarrh of typhous fever; next, into that of the exanthematous diseases; and lastly, make some observations on those forms of bronchitis which occur in other specific contaminations of the system, and which may be denominated the chronic secondary catarrhs; and on the sympathetic coughs from irritation of the digestive system."—p. 81.

The following graphic description of the complication of bronchitis with epidemic and typhous fever we must not curtail.

"*Bronchitis of Typhous Fever.*—The occurrence of bronchitis in cases of typhus is not constant; and even when it exists, it is often slight, and easily manageable. But on the other hand, the pulmonary system may be severely attacked, and death induced by asphyxia from excessive secretion of the bronchial membrane. We commonly meet with this severe form under two circumstances; the one where the symptoms are manifest and distressing, the other in which the disease is latent and insidious. But in one respect both these forms agree, namely, that at an earlier period than in the idiopathic catarrh, secretion generally comes on in enormous abundance, and is too often the immediate cause of death. As far as I have seen, the great majority of patients in fever, who have died with what is called effusion into the chest, owe their death to this disease, which has been overlooked, or insufficiently treated. This fact illustrates the want of proportion which commonly exists in typhus fever between the functional alteration and the organic change. With symptoms of an apparently trifling character we may, after death, find universal bronchitis, great congestion, or pneumonia.

"In many cases, as Laennec has observed, a bronchitis shall exist through the whole course of a fever, yet so slight as to merit little notice. But in all these cases we must pay a careful attention to the chest, for we know not the moment at which this trivial disease may assume a dangerous character; and hence, when we discover any increase in the bronchitic symptoms we should immediately direct our attention to the lung, and, if possible, arrest the progress of the local disease."

“ In other cases, as I have before mentioned, the bronchitis is a prominent and formidable symptom ; and in addition to the other phenomena of fever, we find the patient with lividity of countenance, cough, hurried breathing, and expectoration. Finally, though these symptoms be but slightly marked, yet the patient may be labouring under a bronchitis, of the intensity and extent of which nothing but a physical examination can convince us. Such a patient may continue for days with but little apparent suffering of the respiratory system, and be suddenly cut off by a super-secretion from the bronchial mucous membrane.

“ This form of disease is commonly co-existent with more or less of gastro-enteric inflammation, thus forming one of the most fatal varieties of fever in this country. In some instances the disease predominates in the respiratory, in others in the digestive system ; and I have often observed a remarkable alteration of this predominance of disease between the thoracic and abdominal cavities. Thus, suppose to-day we observe the breathing hurried and laborious, the cough troublesome, the expectoration difficult, and the stethoscopic signs well marked, the chances are that the abdominal symptoms are less severe, the abdomen is less swelled and painful, diarrhoea has ceased, the tongue has improved, and that characteristic prostration which attends gastro-enteric inflammation has remarkably disappeared. In two or three days, however, the abdominal symptoms return, with decided diminution of those of the chest, and in the course of a single case several alternations of this kind may occur. In such instances death generally takes place by asphyxia ; and I have known cases in which the gastro-intestinal mucous membrane was found in so favourable a state as to leave little doubt, that, as far as its organic change was concerned, the patient would have recovered, but for the bronchitis. I think we may state, with respect to the pathology of mucous membranes in fever, that although the gastro-intestinal mucous surface may be, and often is affected, while but little, if any, disease exists in the respiratory organs ; yet that the converse of this proposition is seldom true, a point of the utmost importance in practical medicine, as bearing on the application of general, local, and specific treatment.”—pp. 81-3.

The chapter on acute secondary bronchitis is followed by a very interesting chapter on “ chronic secondary bronchitis.”

“ Thus, the gouty, scrofulous, syphilitic, and scorbutic contaminations may, and no doubt do, produce their specific forms of bronchial inflammation. And even though as yet pathological anatomy has not revealed any organic differences in these lesions, whether as compared with the idiopathic disease, or among one another, yet that their peculiar character is shewn in their history, symptoms, and the result of treatment, every unprejudiced and practical man must allow.—p.90.

The observations on syphilitic bronchitis from p. 91 to p.

95, are well worthy of perusal, the disease so closely simulating, as it frequently does, confirmed phthisis. This disease although particularly well known to practitioners of experience, requires much more extended scientific investigation than it has as yet received.

"Sympathetic cough" is a subject deservedly treated at length by our author, and we cordially give our concurrence from experience to the value of stethoscopic information in such cases. If useful in actual disease of the lungs to determine its seat, stethoscopic examination is often doubly useful in telling us where disease is not, and in thus turning our attention to other organs, in cases where symptoms would apparently demand treatment for the lungs.

"The negative results of the examination in this case are of the greatest value; indeed a more beautiful and practical application of the stethoscope can hardly be mentioned. From the similarity of the symptoms the disease is constantly mistaken for bronchitis and pneumonia. The characteristic symptoms of gastritis are overlooked, and its sympathetic relations alone attended to. In consequence of this error in diagnosis the most fatal mistakes are committed. Patients labouring under gastritis, or gastro-enteritis, have been largely bled, and thus thrown into a typhoid state; or the abdominal inflammation has been exasperated by the use of remedies intended to relieve the pulmonary irritation."

"*Treatment of Bronchitis.*"—Under this head our author commences with the treatment of bronchitis in the child, and divides the cases requiring treatment into those of the milder forms cured by purgative, and minute doses of hippo one-eighth of a grain every hour, and into those cases which of a more aggravated form, require much more active treatment—bleeding, general and local, with tartar emetic, or calomel and hippo.

"*Treatment of Bronchitis in the Adult.*"—After local bleeding, tartar emetic given under certain restrictions, holds the first place in our author's estimation, and in the management of the dose, &c., Laennec's formula is followed. The following are the observations of Dr. Stokes, relative to the effects of the remedy and the indications its exhibition affords.

"As far as I have seen, the effect of this medicine on bronchitis is two-fold. It may either, as it were, cut short the inflammation, so as to leave hardly a symptom or sign behind it, or it may cause its early passage into the second or secretive stage. In the first case the oppression and wheezing cease, the cough becomes trifling, the lividity disappears, the pulse falls to its natural standard, and respiration is found every where pure, equal, and healthy; with the exception, perhaps, of a slight sonoro-mucous rale, which is now and

then audible: the patient recovers his appearance, and declares that he is quite well.

“In the second case, after the use of the remedy for several days, we find the patient looking pale and miserable; he perspires copiously, and has often a rapid, small pulse; the breathing, though less difficult, is hurried, and the cough, though less painful, is so frequent as to allow of but little rest. It is followed by a copious expectoration of opaque mucus, or of muco-purulent secretion. On percussion the chest sounds clear, but the respiration is generally marked by mucous rales, of various intensities, in some cases combined with the sonorous, in others passing almost into the crepitating character; at this period antiphlogosis can be used no longer, and a cautious but decided employment of the stimulating and tonic treatment must be had recourse to. But even in this instance, though the exhibition of the tartar emetic has not, as in the former case, restored the lung to a state of health, yet it has not been without its advantages, inasmuch as experience shews that now the exhibition of stimulants and tonics will have the best possible effect. This fact, among many others, seems to me illustrative of a general rule in therapeutics, that in almost all local diseases the successful employment of stimulation depends on the previous use of a general or local antiphlogistic treatment.”—pp. 113, 114.

There are few diseases that shew more strongly than bronchitis the evils of following any one system of treatment as applicable to all the stages of any one disease. There is no error attended with worse practical results, than supposing that because the same name is retained for a disease through its various phases, the same pathological state is therefore continuous, or the same principle of treatment applicable. Indeed in those respects the stages of the one disease often differ more from one another, than do two diseases of different names. Our author has not let pass the opportunity afforded him by the subject of bronchitis, of inculcating some general principles so necessary as guides in the treatment of all diseases. Our author has done well in this, for a general principle, when illustrated as here by particular instances of its applicability, will always make a better impression than when abstractedly stated.

“*Treatment of the Second Stage of Bronchitis.*—Before entering on the mode of treatment, which experience has pointed out as best for this affection, I find it necessary to premise some general pathological observations. I do not propose entering into the hacknied question of the nature of inflammation, but shall employ the attention of my readers much better in the examination of certain circumstances connected with it, which are of the utmost importance in practical medicine. We find that in a vast number of

general and local diseases, two stages are observed, the nature of which cannot be expressed by any knowledge to which the mere anatomist can arrive, but whose existence, duration, and succession, are pointed out by the results of treatment. With the first of these, pathologists have long been familiar; but of the existence, nature, and frequent occurrence of the second, they have not yet taken sufficient notice. *In the first of these stages antiphlogosis is necessary, and stimulation injurious. In the second, antiphlogosis is insufficient, and often injurious, while stimulation becomes necessary.*

“Although much had been done in this field before, yet Broussais had the great merit of shewing, that a vast number of local diseases, before supposed to be separate entities, could be reduced to the first of these stages, the difference of symptoms being principally referrible to the sympathies of organs; but his great error was in stopping short here, and in not recognizing the existence, in almost all local diseases, of a state in which the symptoms do not yield to that treatment which was found advantageous in the earlier periods of the case; or if they do yield, it is only at a great expense to the constitution. As a result of this omission, the treatment of local diseases by the physiological school, was for too great a length a time, purely antiphlogistic, and hence their repeated bleedings and protracted starvations in almost all diseases, and their unfounded dread of any thing which could have the slightest stimulating effect.

“But experience has shewn, that this treatment, though so applicable in the first, is often inapplicable or insufficient in the more advanced stages of the disease; that its effects will be to reduce the powers of life, while effusions and super-secretions are running down the patient, and throwing the nervous system into extreme asthenia. It has also shewn, that these symptoms must be met by an omission of all reducing treatment, and by the employment of remedies, the use of which would be highly injurious in the first stages of the disease: but as the period of supervention, and the symptoms of this second, or asthenic state, vary in different individuals, according to a vast variety of circumstances, it is plain, that in the detection of this passage from the first into the second stage, and in the omission of one kind of treatment and the adoption of another, the skill and success of the experienced physician will be best seen.

“Of the different tissues, the mucous membranes, in their pathological state, best illustrate the foregoing propositions, and next to them the skin; but I have almost no doubt that they will be found to apply to the parenchymatous organs, both in cases of local and more general disease. Andral has suggested that the success of tonics and stimulants, in the advanced stages of fever, may be thus explained; and when we consider that in most cases of that disease there are affections of the mucous membranes, and also of the parenchymatous organs, there seems to be great reason for adopting his opinion.

As yet we know but little of the laws which regulate the passage of the first of these stages of disease into the second; but of the truth

of the following views, an investigation, conducted with the greatest accuracy that I was capable of, has fully convinced me.

“ It is obvious that any change in the nature of a local disease, which would render it not only less amenable to antiphlogistic treatment, but in which such a treatment would lose all effect except in lowering the powers of life, must be of the utmost importance. Now when we inquire what are the circumstances which seem to govern this change, we find that they are various. In some cases the chronicity of the disease is presumptive evidence that such a change has occurred; in others, we find it a very early period of the morbid state; and in a third, the first stage continues for an indefinite length of time. The state of the constitution too, has a decided influence, for in some individuals a local inflammation will require tonics and stimulants much sooner than in others, although the seat and nature of the disease be apparently the same. Nor are these the only circumstances, for we find much to depend on the previous treatment, and on the seat of irritation.

“ I shall conclude this digression, by stating, in the form of propositions, those points of doctrine which seem to bear most directly on the treatment of pulmonary disease.

“ *First.* That in some cases an antiphlogistic treatment may cut short the disease in its first stage; but that in most instances, particularly in the affections of mucous membranes, its effect is to bring on the occurrence of the second stage.

“ *Second.* That the principal circumstance on which the success of stimulants depends, is their having been preceded by antiphlogistic treatment.

“ *Third.* That in many cases disease will continue for a great length of time, and yet (as shewn by the result of treatment) be in its first stage. Although chronic as to its period of duration, it is still acute when tested by the effect of treatment.

“ *Fourth.* That this result is most frequently seen under the following circumstances:

“ (a) Cases of local disease, with but little injury to the general health.

“ (b) Diseases of tissues, where there is but little relief by secretion.

“ (c) Diseases of organs which have been neglected, or exasperated by too early stimulation.

“ *Fifth.* That in many cases, where the disease has been neglected or exasperated, it will be necessary to precede all stimulants by an antiphlogistic treatment, either general or local.

“ I wish to be clearly understood, as not putting these views forward as very original. I shall be content if they are thought important. In the treatment, not only of the pulmonary, but I believe of all other forms of the diseases of irritation, they will be found so applicable, as to furnish the true key to successful management, and on the importance of any principle which has a general application in the science of medicine I need not here dilate. The overlooking

of this second stage, and the doctrine that disease did not change in its characters or nature, seems to me to have been one of the greatest errors of the physiological school. It was, however, but one of many false conclusions, which the attempt to simplify disease, by reducing it to a common formula, rendered inevitable; and the doctrine, which led to the denial of specific affections, is the same as that which declares for an antiphlogistic treatment throughout the course of a disease, and that one of the most injurious maxims of medicine is that which refers to the necessity of tonics in the advanced stages of bronchitis."—pp. 114-118.

Of the tonics applicable to this stage of bronchitis, our author places his chief reliance upon senega, in combination with carbonate of ammonia, camphorated tinct. opii, and squill; next in order come the balsam, gum ammoniac, myrrh, and squill.

He warns us, and properly, against the danger of using remedies by inhalation or otherwise, that may suddenly check expectoration, and thus convert the chronic catarrh into acute bronchitis or even pneumonia.

"He must never forget, that in all those cases where the cure consists in the arrest of a secretion from an extensive surface, there is a danger either that a new inflammation will be set up in the affected tissue, or that some other disease, generally of an acute nature, will be produced; for as the sudden arrest of a diarrhoea may produce ascites, or peritonitis, or hepatitis, so that a bronchial flux may induce a fatal pneumonia, a pleurisy, or an hydrothorax, and to this our attention must always be directed. Experience tells us that these distressing consequences are best avoided by attending to the following circumstances:

"*First.* To provide that the stimulating remedy shall be preceded by a fit antiphlogistic treatment.

"*Second.* To combine it with a revulsive plan, such as blistering, cupping, warm bathing, &c.

"*Third.* To omit the remedy on the slightest appearance of new irritation, either in the affected part or in any other vital organ."—pp. 121-122.

Of the exhibition of frequently repeated emetics in chronic asphyxial bronchitis our author speaks highly, confirming the favourable report of them given by Laennec.

"*Treatment of Secondary Bronchitis.*"—Under this head Dr. Stokes confines himself to the treatment of bronchitis occurring in typhous fever. The following are the variations of treatment requisite for this form.

"*First.* That the antiphlogistic treatment is not to be employed so boldly nor so long.

"*Second.* That the stimulating treatment may be resorted to at an earlier period, and with much greater boldness.

“*Third.* That the use of blisters may be employed also at an earlier period.

“*Fourth.* That as a general rule we are not to expect so much from internal remedies, as in the idiopathic affection. The cause of this is often the complication with abdominal disease.”—p. 129.

These propositions are then dwelt upon in detail, but for the information, and it will repay the reader, we must refer to the work.

The pages on the treatment of bronchitis are followed by a chapter on the

“*Organic Changes of the Tubes and Air Cells considered in Relation to Bronchitis.*—These may be enumerated as follows :

“*First.* Narrowing of the calibre ; obliteration.

“*Second.* Dilatation of the tubes.

“*Third.* Ulcerative destruction of the tubes.

“*Fourth.* Enlargement of the air cells.

“*Fifth.* Atrophy of the lung.”—p. 134.

“*Narrowing and Obliteration of the Bronchial Tubes.*”—The chapter on this subject is a very interesting pathological chapter, in which structural anatomy and pathology are made to mutually throw light on each other. To understand the effects of obstruction of one or more bronchial tubes upon the portion of lung supplied by them, and upon the bronchial tubes and air vesicles in their neighbourhood, it is necessary to remember that the bronchial tubes in their ramifications do not anastomose, and that hence, where a bronchial tube is obliterated, there can be no other communication to the portion of lung previously supplied by air through it.

“As might be expected, those parts of the lung to which the obliterated tubes extend, have been found to present a sunken appearance, so as to cause depression of various depths on the pleural surface. The mechanism of this change is obvious. In the neighbourhood of the obliterated canals, however, the air cells were frequently found dilated, while in other instances, the tissue was dense and impermeable”—pp. 140, 141.

Obliteration of the bronchial tubes is divided by Dr. Stokes into two kinds: the first where the obliteration commences in the smallest ramifications, and travels upwards; the second, where the obliteration is the result of obstruction of a large branch or trunk. Of these the first is the more frequent and important. The following are our author's observations on the connexion of it with inflammatory action in the bronchia.

“When we consider the structure and functions of the lung, it seems probable that its minute bronchial tubes, or excretory ducts,

might be plugged up by secretions of the cells, independent of inflammation in the parietes either of the tubes or cells. Yet we cannot help looking on the obliteration as principally connected with inflammation. In fact, the preponderance of the latter process, in the vast majority of internal diseases, gives alone a great probability that the lesion in question is one of its results. But when we find it occurring in an organ and tissue, of all others the most liable to this action; when we recollect that the adhesive process is always preceded by increased action; when we see this most evident in that part of the tube in which the white tissues are predominant, and perfectly analogous to the same process in serous inflammations; when we observe so close a resemblance between this disease and the inflammations of other tubular organs, such as arteries, veins, and lymphatics; when we find it in most cases occurring with other signs of chronic irritation of the lung, as in phthisis, or as a distinct result of acute inflammation, we cannot avoid coming to the conclusion, that it is a frequent and most important result of bronchitis; and that before we can consider the diagnosis and pathology of this disease as established, its phenomena must be studied with reference to the obliteration of the minute tubes."—p. 147.

"Dilatation of the Bronchial Tubes."—In addition to the various causes assigned by different authors, from Laennec downwards, to account for this disease, Dr. Stokes adds paralysis of the muscular tissue of the bronchial tubes.

"But another cause may exist, and it is one as yet not alluded to by any author, I mean a paralysis of the muscular structure itself, the result of the inflammatory action; and which, like the paralysis of the intestine in enteritis, or ileus, is followed by a dilatation of the tube. Dr. Abercrombie has shewn, that ileus may occur without mechanical obstruction; that the dilatation of the tube may be referred to a lesion of the muscular apparatus itself;* and further, that the collapsed parts are almost invariably found healthy at all periods of the disease, the morbid appearances being confined to the distended portions.

"There can be no doubt of the fact, no matter how we explain it, that where muscular structures are in close connexion with other tissues which are inflamed, their functions suffer, and we observe, first, an increase of innervation, as shewn by pains and spasms, and next a paralysis, more or less complete. When we come to speak of empyema, diaphragmitis, and inflammation of the heart, we shall see of what importance these considerations are. At present it appears that we may hope to elucidate some points in the symptoms and treatment of bronchitis by having recourse to this view. May not this paralysis explain the difficulty of expectora-

* Diseases of the Stomach and Abdominal Viscera, p. 185.

tion in certain cases ; the stasis of matters in the tubes, and the liability to asphyxia in bad catarrhal fevers ? And we might further inquire, how far its existence should lead us to modify our treatment, and seek for some agent which would stimulate the bronchial muscles to contract. Abercrombie relates a case of distention of the bowels, in which galvanism had the best effect ; and I have already alluded to the use of the same agent in pulmonary disease by Drs. Philip and Forbes. Now, as the lung derives a large portion of its nervous supply from the cerebro-spinal system, we might hope, by the exhibition of such remedies as strychnine, to act beneficially upon it when its innervation was injured.”—pp. 151, 152.

There is a lengthened and instructive chapter on the difficulty of diagnosis between dilatation of the bronchia and phthisis, and this portion of the subject affords a strong illustration of the principle, which on setting out the author declared to be one of his main objects, the impressing on the minds of his readers the absolute necessity of combining physical signs with symptoms in using them for diagnosis. There is not a physical sign of phthisis that may not be found in dilatation of the bronchia, nor a single sign of dilatation of the bronchia that is not found in phthisis. Desirous even as we are to transfer this portion of the work to our pages, its length prevents us.

“*Dilatation of the Air Cells.—Emphysema of the Lung of Laennec.*”—This affection is divided under three heads :

“*First.* Simple dilatation of the cells without rupture.

“*Second.* Dilatation of the cells, with rupture of their parietes ; so that several shall coalesce, and form a cavity of some extent.

“*Third.* The combination of the second condition with a true emphysema of the inter-lobular cellular texture, but which is generally very slight. To this subject I may hereafter return.”—p. 174.

The appearance and symptoms of a patient labouring under this disease are well painted ; and those accustomed to see the disease will at once recognize it as a picture from nature.

“The physiognomy of these individuals is almost characteristic. The complexion is generally of a dusky hue, and the countenance, though with an anxious and melancholy expression, has in several cases a degree of fulness which contrasts remarkably with the condition of the rest of the body. It is probable that this results from hypertrophy of the cellular membrane and respiratory muscles of the face ; the first produced by repetitions of venous obstruction, and the second by the violent exertion of the whole system of inspiratory muscles. The nostrils are dilated, thickened, and vascular. The lower lip is enlarged, and its mucous membrane everted and livid, giving a peculiar expression of anxiety, melancholy, and disease to the countenance. The shoulders are elevated and brought

forward, and the patient stoops habitually, a habit contracted in his various fits of orthopnœa and cough, and the relief which is experienced from inclining the body forwards. Thus, even in bed, we often find these patients sitting up, with their arms folded and resting on their knees, and the head bent forwards, the object of which seems to be to relax the abdominal muscles, and to substitute the mechanical support of the arms for that of muscles which would interfere with inspiration. To such a degree does this habit of stooping alter the conformation of the chest, that I have seen several cases in which the acromial, inter-scapular, supra and sub-spinous surfaces had become nearly horizontal. Under these circumstances the apices of the scapulæ are remarkably projected; anteriorly we observe the clavicles arched and prominent, and the triangular spaces which answer to the insertion of the sterno-mastoid and scaleni muscles are singularly deep. The cellular membrane and adipose tissue of the neck seem to be absorbed, but the muscles of inspiration, and particularly the sterno-mastoid and scaleni are hypertrophied, and the thyroid cartilage is generally prominent and hard, so as to feel as if ossified. When we examine the chest we discover other and remarkable changes; the sternum has lost its flatness, or its relative concavity, but is thrown forward and arched both in a longitudinal and transverse direction; the intercostal spaces are widened, but not dilated as in empyema, on the supero-anterior portion, indeed, the chest seems smooth and convex, but this is owing to the hypertrophied state of the pectoral muscles, a condition induced by the long-continued difficulty of respiration. When we examine the side, however, we see the intercostal spaces deeply marked, and presenting no indication of protrusion; so that if we compare the diseases of dilatation of the cells and empyema, with respect to the external conformation of the chest, we find that in the first, the appearance of smoothness and dilatation is most evident superiorly, while in the latter the reverse occurs. The lateral portions of the chest are remarkably deep, and their convexity not at all proportioned to that of the anterior or posterior portions of the thorax. On applying the hand to the inferior sternal region we generally find that the heart is pulsating with a violence which we would not expect from the examination of the pulse at the wrist, which is often small and feeble, while the impulses of the right ventricle are given with great strength."—pp. 176-178.

The modes by which this disease causes death, and the diagnostic physical signs of the disease, come next under description; but on these, as in some other previous parts, we are obliged to refer our readers to the work itself.

In the chapter on the treatment of dilatation of the air cells, our author coincides in the observation of Dr. Osborne, that in many cases there is obtained a cure, or alleviation very nearly approaching to it.

We have been induced, in going along, to quote so extensively from the work before us, that we must defer the continuation of its review to our next number. We need not express any opinion on it; sufficient extracts are before our readers to enable them to judge for themselves: what their opinion of the first portion of the work will be, we have no doubt; and we may certainly promise that the remaining part, constituting, indeed, its larger portion, will be read with still increasing interest.

D. J. CORRIGAN.

Guy's Hospital Reports. No. IV. April, 1837.

THAT the records of even a single hospital, when conducted by able and willing hands, are capable of being rendered instructive to the profession, and creditable to those engaged in them, the Reports of St. Guy's afford satisfactory evidence. The combined labours of gentlemen whose characters for capability are known; whose opportunities are great; and whose transactions, as regards those reports, are undertaken more as a matter of duty than of interest, must be received with respect. The conductors interfere not with the works of their neighbours. Their only object is "to advance knowledge, by adding something to the common stock." They are no critics. They assume no weapons either for attack or defence. They "strive not as warriors, but as cultivators of a common soil, whereon many labour—unmolested, and unmolested." Since the commencement of these Reports, the pupils, many of whom are engaged in drawing them up, have evinced an extraordinary zeal: all are animated; all seek to be employed. So much is this the case, that a society termed the "*Clinical Report Society*," has been established, consisting of upwards of eighty members, preparing themselves for future honours. Oh! that we were able by our advice and influence to establish such a system in all hospitals; either as a separate undertaking, or conjointly with others. How much would the profession—how much would the public be benefited by it! But, we acknowledge that there are many obstacles, several of which are the results of certain infirmities in human nature, opposed to the fulfilment of our laudable desires.

The contents of the 4th number are—

A practical view of lithotrity; with remarks on the lateral operation of lithotomy; by Mr. Aston Key. (With plates.)

Observations on the diagnosis of pneumonia; by Dr. Addison.

Two cases of fatal poisoning by arsenious acid; with re-

marks on the solubility of that poison in water and other menstrua ; by Mr. Alfred S. Taylor.

An essay on the safety-valve function of the right ventricle of the human heart ; and on the gradations of the function in the circulation of warm-blooded animals ; by Mr. T. W. King. (With plates.)

An experimental inquiry respecting the process of reparation after simple fractures of bones ; by Mr. Bransby Cooper. (With plates.)

Summary of cases in the obstetric ward ; statistical account of the lying-in charity ; reports of obstetric cases (with plates) ; by Dr. Ashwell.

Description of a remarkable specimen of urinary calculus : to which are added some remarks on the structure and form of urinary calculi ; by Dr. Hodgkin. (With plates.)

Cases and observations illustrative of diagnosis, where tumours are situated at the basis of the brain ; or where other parts of the brain and spinal cord suffer lesion from disease ; by Dr. Bright.

Illustrations of the museum ; by Dr. Hodgkin.

Lithotritry.—Nothing has militated so much against the usefulness of lithotritry as the over-zeal of its advocates, in pressing it forward as an operation destined to supersede lithotomy. Its claim to be ranked amongst the greatest improvements in modern surgery is, however, fully established ; and, as time passes round, as an increasing number of hands are employed in its practice, and as more candour is exhibited regarding its success, so will it be rendered more effective as a remedial agent. The cases to which *it* is adapted, and those which the *knife*, only, can relieve, will be marked out with accuracy.

Mr. Key has rendered an important service in giving a history of his experience of each operation, without partiality or prejudice : his conclusion is, that if both be put into practice—each in the instance to which it is properly applicable—more good will result than if either one or other were to be employed exclusively. But he, nevertheless, is of opinion, that if lithotritry were to be introduced, to the entire exclusion of lithotomy, society would suffer by the exchange ; and, that if the operations were to be judged of by their success, as applied indiscriminately to all cases, lithotritry would be left far behind. The new operation can never completely supersede the old. The *chef d'œuvre* of ancient and modern surgery will never fail to be in requisition.

Mr. Key reports twelve cases—some, treated by one operation, some by the other. Of these, three were cured by the operation of lithotritry, and three underwent the operation of litho-

tomy, with success, after being pronounced unfit for lithotripsy. Of the remaining six who died, one sank with abscess of the prostate, after lithotripsy; four, with protracted sufferings in consequence of fragments remaining in the bladder; and one with disease of the bladder brought on, or aggravated by the operation—and possibly with remaining fragments.

No doubt, if all these cases had been lithotomized, the average of cures would have been greater. The three patients who could not undergo the operation of lithotripsy, and were afterwards compelled to seek relief from the knife, were cured; and it is but reasonable to conclude that some of the unsuccessful cases would have had a better result had they been subjected to the same plan of treatment.

Among the advantages which Mr. Key enumerates as arising from the invention of the lithotrite are, first, a more early application on the part of the afflicted, from a hope of being easily cured; and secondly, an improved skill in the art of sounding for the stone.

Mr. Key passes under review the dangers incidental to both operations, in order to assist in determining which, in each case, would be the more safe and efficacious. In *lithotomy* there is, first, the danger of hæmorrhage. Loss of blood has a bad effect on the result of any operation; and, in this instance, if inflammation should come on after it, either in the peritoneum, or vesical cellular tissue, the prostrated powers of the patient disable him from setting up a barrier to the mischief by a salutary adhesive process. In the latter case, the action assumes the suppurative form, and cellular abscess is the fatal consequence. In the former, a slight extension of the peritonitis, producing opaque, serous effusion, is sufficient to induce fatal prostration.

Infiltration of urine is another of the bad results of lithotomy. It may be either the consequence of an injudicious incision, or of bad health in the patient. Injury to the prostate and neck of the bladder, Mr. Key considers to be a frequent source of mischief: contusion of the prostate in dragging at the stone is most injurious. Peritonitis is also to be apprehended: it is more often caused by extension of inflammation from the perineum than from a wound in the membrane itself. Operations on the urethra, without reaching the bladder at all, are sometimes followed by peritonitis. A wound of the rectum is of rare occurrence; but, even should it happen, Mr. Key is not disposed to attach much importance to it. He has only known of one such accident, and, in that case, no bad consequences followed. The wound may be inflicted either in the attempt at reaching the groove of the staff, or in dilating the incision after the groove is exposed; most frequently perhaps in the latter stage.

Among the after consequences of lithotomy, fistula in perineo, impotency, and incontinence of urine, are enumerated by Mr. Key, and even of these he has seen very few instances. Incontinence, according to his experience, rarely occurs in the adult; and, in children, it seldom continues beyond puberty.

Mr. Key has not enumerated amongst the dangers incidental to lithotomy, *erysipelas*, an affection which is a source of well-grounded alarm to all operators, and which should not be forgotten in the comparative estimate.

Lithotrity, too, has its faults. It is not so universally applicable as lithotomy. In children, in whom the latter seldom fails of making a cure, the former cannot well be practised, as there is not room for the working of instruments. Aged persons are often curable by the instrument; but when, as is often the case in them, the prostate is enlarged, or the bladder diseased, the knife affords the only chance. A very large stone may, if the bladder be so sound as to admit of repeated applications of the lithotrite, be removed in this way; but, if otherwise, lithotomy is the sole alternative. An irritable or diseased bladder will not admit the lithotrite, and great injury may, under such circumstances, be done by the attempt. Here, too, lithotomy must be called into requisition. Mr. Key has found, however, that some of such cases owe their aggravation to intemperance, and admit, by proper management, of being brought to a state fit to bear the lithotrite. One of the greatest imperfections in this instrument is the risk of leaving fragments in the bladder, which in a short time become nuclei for new stones; and the more diseased the bladder, the more rapidly will such concretions form. In several of the unsuccessful instances, given by Mr. Key, such was found to have been the case.

In short, a patient, to subject himself to lithotrity, should be full grown; he should have a good constitution; the stone should not be very large; and his bladder should be sound, and capable of holding enough of water to allow of the easy working of the instrument.

In order, if possible, to break down the stone at one sitting, Mr. Key has made an improvement in the lithotrite, consisting of a net to be thrown round the stone before the process of breaking has commenced, and by which the larger fragments can be brought successively between the blades. He has operated with this instrument in some cases, with success; but admits that its application is limited. Mr. Key's paper contains much information on many other points, connected with stone in the bladder, well worthy of perusal. A representation of his improved instrument is annexed to the memoir.

Diagnosis of Pneumonia.—Dr. Addison passes a well-

merited eulogium on Laennec, but he goes a little too far in apologizing for an attempt to give additional information on the subject of disease of the lungs. Since the publication of the splendid work of Laennec much important matter has been discovered; and as the field is still widely open, every man who makes out a new fact should boast, rather than be ashamed of its announcement. The addition to our ordinary diagnostic marks of pneumonia, suggested by Dr. Addison, is that the skin, in nineteen such cases out of twenty, acquires "a pungent heat."

"Of all the symptoms of pneumonia," he says, that "the most constant and conclusive, in a diagnostic point of view, is a *pungent heat of the surface*. By this symptom alone, the first stage of pneumonia may, in most instances, be readily recognized; by this symptom alone, I have repeatedly pronounced the existence of pneumonia, before asking a single question, or making the slightest stethoscopic examination of the chest. The presence of this symptom has scarcely ever yet deceived me, even in the most complicated forms of inflammation within the chest."

Dr. Addison justly, and very necessarily, enumerates other affections in which a similar condition of the surface exists; but, he says, that—

"It is in original inflammation within the chest that it proves so constant and conclusive a sign of pneumonia; but on every occasion, when present, it ought to lead to a most careful scrutiny by means of the stethoscope."

We remark no farther than to express a wish that Dr. Addison had specified the particular stage of which this "pungent heat" is so characteristic, for there are certainly several stages, in which pallor and coldness are marked symptoms.

Dr. Addison's observations respecting the frequent absence of many of the physical signs of pneumonia, as laid down by Laennec, we fully concur in. Laennec has, himself, admitted the fact, and, therefore, stands free from the charge of dogmatism. But we cannot concur in the view taken by Dr. Addison that the symptoms laid down by this celebrated author, as characteristic of pneumonia, are to be found only in cases which are exceptions to a general rule, and, in fact, cases of complication. One or other, if not all, of these symptoms will commonly be observed, and such, if taken in connexion with the phenomena discoverable by the stethoscope, will seldom fail to guide the watchful physician to a true diagnosis of the ailment. Typhoid pneumonia, as it has been judiciously termed—a most insidious form of the disease, and one to which the attention of practitioners is not sufficiently awakened—is that, above all others, attended with the least local distress, and that most likely to be

overlooked. The mistakes which Dr. Addison alludes to, as having been made in confounding continued fever, hydrocephalus, mental aberration, &c., with pneumonia, are not, in a physiological or practical point of view, to be taken into account; for such mistakes are only evidences of ignorance or inattention on the part of the practitioners to whose care the invalids were entrusted.

Poisoning by Arsenious Acid.—Mr. Taylor reports two cases which contrast strongly with each other. In one, there was absence of pain, except a little at first; no diarrhœa; extreme thirst; sensibility to the last; slight convulsions only in the last moments; death in *fifteen* hours. In the other, there was great pain; vomiting; violent diarrhœa; not great thirst; cramps several hours before death; then coma; death in *seventeen* hours.

In the *post-mortem* examination of the one, poison was found in the stomach; gastritis, without ulceration; the jejunum more inflamed than either duodenum or ileum; no ulcers in intestines. In the *post-mortem* of the other, though an ounce of poison was swallowed, none of it was found in stomach; gastritis with numerous ulcers; duodenum inflamed; ileum ulcerated; colon and rectum inflamed, but not ulcerated.

Mr. Taylor reports numerous experiments in reference to the solubility of arsenic in different menstrua. Among other things he finds, that it is more soluble in hot than cold water; and that a solution of it in boiling water, when cooled down, holds from ten to twenty times more of the arsenic, than a solution of the same in cold, or even cold boiled, water. Mr. Taylor, therefore, draws the *practical* inference, that it is advantageous, *first*, to dilute considerably with water the liquid containing the poison, and, *secondly*, to boil the liquid thus diluted for at least two or three hours. By attending to the first point we, in a great degree, destroy the effect of organic matter in impairing the solubility of the poison; and, by the second, we insure the solution of every portion of the poison which may be present. To those with whom the fact is not familiar, the intelligence may be of service.

Safety-valve Function in the right Ventricle.—Without meaning to detract from the merits of Mr. King in following up, in the judicious and scientific manner which he has adopted, this interesting question, we feel ourselves called upon to state that the principle of a safety-valve function at the right auriculo-ventricular opening, has been taught in the Dublin schools for many years. Nay, more, this principle has been carried further by the teachers in these schools than by Mr. King. It has been

taught by Messrs. Jacob, Harrison, Adams, Houston, and others, that the imperfection of the Eustachian valve, the absence of any valve at the mouth of the vena cava superior, and the absence even of any valves in the larger veins leading to the right auricle, was in accordance with the same wise provision of nature. We are fully prepared for the announcement made by Mr. King; and we thank him for his farther and more complete illustrations.

The occasional obstruction to which the blood is subjected in the lungs, under various circumstances of health and disease, calls for such a provision. Under any violent bodily exertions, for instance, during which the blood is driven into the right auricle of the heart more rapidly than it is possible for the vessels of the lungs to give it transmission, more especially in disease of these organs, a bursting of one or other of the right cavities of the heart would necessarily follow, if no reflux were permitted. The principle has been long acknowledged. Mr. King has, by his researches on the subject, supplied a want, which we were sensible of, regarding the mechanism of its fulfilment.

Mr. King has followed up the subject in mammalia and birds. Those interested in the inquiry will find much information in a perusal of his memoir.

Process of Re-union in Fractures.—Mr. Bransby Cooper has undertaken a series of experiments to determine with exactness the series of phenomena which take place in the reparation of fractured bones. His inquiries have not yet brought to light much novel matter; but, as they are only in progress, we shall not, for the present, offer any comment on them. We cannot, however, withhold the expression of our good opinion respecting the beauty of Mr. Cooper's illustrations, and the advantages which his inquiry holds out to promise.

Rare Form of Calculus.—Dr. Hodgkin describes a variety of human calculus not hitherto attended to. It consists of an alternation of earthy and fleshy layers—the former very fragile, the latter of sufficient consistence to preserve the form of the stone when sawed. Dr. Hodgkin considers the process of the formation of this calculus to be strictly analogous to that by which other alternating calculi are formed; and draws a parallel between it and a calculus in St. Guy's collection, the subject of which had been in the habit of passing a fluid analogous to chyle, in colour, and in the property of coagulating when left at rest. Dr. Hodgkin, in addition, makes some interesting remarks on the causes of the varieties of form in urinary calculi in general.

Tumours in the Brain.—Dr. Bright sets out on the recog-

nized principle, that certain morbid lesions of the brain or spinal marrow are attended, each, with a particular and diagnostic train of symptoms, modified, of course, by the extent and complexity of the disorganization; and he gives nine cases in illustration. In the two first, a tumor existed alongside the pons varolii. Both individuals were, otherwise, healthy; and the affections were traceable to injury of the head. In both, the progress of the disease was very gradual; one, having persisted for three, the other, for eight years. In both, the disease showed itself first by affections of the senses, and subsequently by degrees produced paralysis in various other parts, affecting the intellects but little until at an advanced period, and probably not before the disease had led to extensive serous effusion into the ventricles. The symptoms during life were in perfect accordance with the progress of the organic changes, viz. loss of hearing, first in the left and afterwards in the right ear, from pressure on the auditory nerve, and pons varolii; loss of vision produced by the changes in the optic nerve; gradual paralysis arising from the tardy organic alterations in the brain; and death from sensorial effusion.

Case third.—Paralysis of motion from disease of the processus dentatus. There was, first, pain and stiffness of the neck for three months; then, loss of power, first of the left hand, next of the right; then of the left leg, then of the right; sensation all the while not being impaired; occasional fits of dyspnoea. After eighteen months of protracted suffering, the patient began to mend; when, accidentally, his neck was forcibly moved from the position in which it was becoming fixed, and death followed in about a month. An extensive caries of the odontoid articulation was found; as also an extensive abscess—the recent and immediate cause of the fatality of termination.

In this case, a peculiar lesion, involving only the anterior column of the spinal marrow and the nerves of motion, was attended with a train of symptoms, explainable on our physiological conceptions respecting the functions of these parts. It may also be observed, that this case affords an exemplification of paralysis of the upper extremities existing for a time, from derangement of the cervical region of the spinal marrow, without a co-existing loss of power in the lower extremities.

The three cases which follow, illustrate the diversity of the effects of similar lesions on different parts of the spinal marrow.

In the seventh case, in which there was difficulty of articulation, and of connecting words with their correspondent ideas, the corpus striatum was found to be the part diseased.

The eighth was of a similar nature. The absurdity of the terms used by the patient for familiar objects was ludi-

crous; and though in full consciousness of the *error verborum*, he could not speak otherwise. He called, for instance, a little girl, a *nice little poney*. This gentleman recovered, with only a few occasional traces of the imperfection of speech in attempting to talk fast. Of the nature of the organic lesion, of course nothing could be ascertained, but Dr. Bright is of opinion, that the corpus striatum had been, during the illness, the seat of organic distention.

In the ninth case, the principal symptoms consisted in derangements of the senses of sight and touch. The patient having died of peritonitis from some irrelative cause, the posterior part of the optic thalamus was found, on examination, to have been the seat of the disease which caused the primary ailments.

Dr. Bright concludes by remarking, that

“In the two first cases, the dependence of the symptoms upon the lesion seems well made out. In the two cases of cervical, and the two cases of dorsal disease, the evidence is scarcely more to be denied; and if, in the three last cases, more uncertainty prevails, they may still stand as recorded facts, illustrating some curious, though not very uncommon forms of disease; while the two in which the brain was examined have the still farther value of showing the coincidence if not the dependence of certain very clearly defined lesions, and certain well-marked symptoms.”

Observations on Extraction and Displacement of the Cataract; with Tables, shewing the relative Success resulting from the Performance of these Operations. By Dr. J. A. ROBERTSON, Edinburgh.

[From the Edinburgh Med. and Surg. Journal.]

THE question proposed to be solved by Dr. Robertson is, whether a hard cataract ought to be *extracted* or *displaced*; for he admits the principle, that all soft cataracts, without particular complications, should be broken up.

Dr. R. draws a striking parallel between the advantages and disadvantages of each mode of practice, and concludes therefrom, that reclamation is the more safe and effectual plan. He rejects the operation by depression altogether. Dr. R. gives an elaborate and interesting table of the results of the operations by extraction and displacement, as performed by various distinguished surgeons, and the conclusion which he arrives at is, that, after extraction, there are $30\frac{3}{10}$ per cent. of failures, or about three in ten; and that after the operation by displacement, there are $17\frac{5}{10}$ of failures, or $1\frac{3}{4}$ in ten. In Dr.

Robertson's own experience, the proportion of failures by extraction were $28\frac{1}{2}$ per cent. the proportion by reclination $9\frac{1}{2}$ per cent. Dr. R. is, therefore, an advocate for reclination.

Other questions, however, still remain to be solved : namely, whether the operation by breaking up may not be applicable to a greater number of cases, than are generally treated in this way ; and, whether, under such treatment, the operation through the cornea is not more to be relied upon for success, than that through the sclerotic. With regard to the first position, we can assert, that we have very often seen cases, such as are usually considered to be only fit for extraction, cured by the needle, without any untoward results : and in reference to the second, although Dr. Robertson says, " that in all operations in which the needle is used, that instrument ought to be entered through the sclerotic, and not through the cornea," we must admit our partiality for *ceratonixis*, having seen numbers of persons treated so by Dr. Jacob with the needle which he has devised, with perfect success, and without any bad consequences whatever.

In conversing with Dr. Jacob since these remarks were penned, he informs us, and we know his success to be very great, that there are only two operations, for the removal of cataract, which he holds in estimation, or practises : viz. *breaking up* of the lens, and *extraction*. He considers depression or reclination to be, merely, imperfect modifications of the former mode of cure, with all the disadvantages attendant on injury to the vitreous humor, and the presence of a foreign body in the eye ; for, the detached lens cannot be regarded in any other light. He, consequently, acting under his own impressions, abstains from these operations altogether. Without presuming to put ourselves forward as umpires in the matter, we are, nevertheless, at liberty to express our opinion, that there is much reason, and we know there is much truth, in Dr. Jacob's view of the question. The needle invented by him is designed, solely, for the corneal operation. We have often used it, and seen it used by the hand of the author himself, with perfect success ; and, as regards the ease with which it is worked—the power which it gives to the operator—and the harmlessness of its effects on the eye, we can scarcely conceive an instrument more capable of effecting its purpose, with less injury to this delicate organ.

Respectable opinions are, therefore, still at variance as to the superiority of reclination or breaking up of the lens for the cure of cataract ; and, also, as to the preference which should be given to the corneal or sclerotic operation, when the latter method is that selected.

A Dictionary of Practical Medicine, &c. &c. By JAMES COPLAND, M. D., F. R. S. &c. Part IV. London, Longman, 1837.

WHEN an author brings out a succession of works within a short period, we too often observe a decline in the vigour of his style, and symptoms of exhaustion of his literary stores. But the fourth part of this extraordinary work bears no marks of this decay; it surpasses those which have preceded it, in the spirit and ability, to say nothing of the incredible research, displayed in the discussion of some of the most important subjects of medicine. The articles on fever, gout, hæmorrhage, and diseases of the heart may be instanced, in support of the opinion which we have long ago expressed of Dr. Copland's labours, and which must be entertained by every lover of that science which he has so greatly enriched.

Principles of the Theory and Practice of Medicine, &c. &c. By MARSHALL HALL, M. D., F. R. S., &c. London, Sherwood, 1837.

THIS is a book which will not add to Dr. Hall's reputation. It is a sort of catalogue of diseases, of very little more value to the practical man, than any of the old nosological works. To speak surgically, Dr. Hall has confounded the principles of excision and compression, and has used his amputating knife with such vigour as to reduce medicine to a most sorry and mutilated carcass. Thus the *signs, symptoms, prevention, and treatment of tubercle* are discussed in three pages and eight lines; *scarlatina* occupies two pages; *erysipelas* three; *the diseases of the liver, pancreas, and spleen*, ten pages; and so on with the rest; and yet Dr. Hall tells us, that in treating of each disease, he will "*revolve in his mind the following subjects:*"

- I. The literary history.
- II. The history.
 1. The causes.
 2. The course.
- III. The symptoms.
- IV. The various forms, and their diagnosis.
- V. The complications, the sequelæ, and their diagnosis.
- VI. The treatment, the effects of remedies.
- VII. The prognosis.
- VIII. The pathology and the morbid anatomy.

It is with pain that we feel obliged to express our decided opinion, that the work is neither a view of the principles nor of the practice of medicine. It is not by works of this sort that medicine is to be served. New or fanciful arrangements—formal divisions—and oracular announcements—like the word “established,” so much used by the phrenologists in their harmless quackeries, are not the means by which we are to extend our powers of curing or alleviating disease. It is but just, however, to Dr. Hall, that we should state here that this work is only the *avant courier* of another and greater one : “ coming events cast their shadows before ;” as a shadow, this is a lengthened one : we shall sincerely rejoice if its extension is owing to the beams of a rising, not a setting sun.

SCIENTIFIC INTELLIGENCE.

DR. FRICKE's *Report on the Hamburg Hospital for the First Quarter of 1836*.—Several cases of considerable interest occur in this paper, from which we extract the following.

Inflammation of the Lymphatics.—A strong young man was affected with true exanthematous erysipelas of the leg. On the fourth day a violent inflammation of the lymphatics, from the knee to the inguinal region came on, by which, however, the febrile and gastric symptoms which had been alleviated by emetics, were not aggravated. Whilst the leg was covered with vegetable poultices, the thigh along the course of the inflamed lymphatics was rubbed with a considerable quantity of the Ung. Neapolit. (the active ingredient in which is the grey oxide of mercury,) and cold envelopes were applied over it, and repeated laxatives of calomel and jalap were given. On the third day every trace of the affection had subsided, and the erysipelas had run through all its stages till it disappeared.

Inflammation of the Cellular Tissue of the Right Shoulder ; disarticulation ; injurious shivering ; death.—A strong labourer, æt. 55, much addicted to drink, suffered an inconsiderable injury on the dorsal aspect of the right hand from a blow. Although pain, redness, and swelling immediately set in, he continued his labour. A few days after this an extensive inflammation of the skin, with symptoms of gastric fever, developed itself ; and which, on the arrival of the patient in hospital four days later, involved the whole upper extremity to the shoulder. The arm was œdematous, swollen to twice its natural size, very red, smooth, and shining, covered with large single vesicles : thirst, dry tongue, want of appetite, and constipation formed the remaining symptoms. In the night, symptoms of delirium tremens appeared, and arrived at their full development on the morning of the second day. He had had an attack of this kind two years previously. Long incisions were made over the whole extent of the inflamed surface, from which two pounds of blood were discharged ; poultices were applied to the arm ; internally fifteen drops of Tinct. Opii, increased every hour by five drops. When ninety drops had been given for a dose, quiet sleep was obtained, out of which the patient awoke on the next morning with the sensorium perfectly free, and without a trace of injurious effect from the large doses of opium. The swelling of the arm was

much decreased, and the skin was of its natural colour; the whole arm was bound up moderately fast in a roller. The general health had also much improved, the appetite returned, and the tongue was moist; nevertheless the cellular tissue, both that under the skin and that between the muscles, had passed into a state of suppuration, and neither deep incisions, nor the partial discharge of matter naturally, could set bounds to the destruction. The skin, much thinned, hung now like a loose cloth about the arm. Accesses of fever in the evening, with night perspirations, came on, during which, however, the appetite, digestion, and strength were unimpaired.

On the thirteenth day since admission, and the fifteenth since he became affected with the disease, the fever was continuous, the delirium of longer duration, the pus still more profuse and thinner, the separating skin had become very loose; his strength began also to sink remarkably.

On the morning of the fifteenth day, after a very uneasy night, and violent perspiration in the morning, the abdomen, which had been hitherto soft, became tense, the stools watery, the skin hot and dry, and there was considerable thirst. Soon after a violent shivering for an hour and a half set in, succeeded by a hot fit of similar duration, and then he felt himself exactly as before. Meanwhile the suppurating surfaces had become more flabby, the discharges thinner, more profuse, and fouler.

The only possible means of saving the patient appeared to be that of removing the affected member. The destruction of the cellular tissue and of the skin in part, extended so high up, that it appeared necessary to remove the arm from the shoulder joint. The operation was performed very quickly by an oval incision; and so perfectly was compression made use of on the subclavian artery, and the torsion of the arteries so quickly performed, that he lost but four ounces of blood.

The patient was very much excited after the operation, and took ten drops of Tinct. Opii: as much more was given in the evening. He slept at night without delirium, and felt himself well next morning. The inflammatory fever was inconsiderable, and there was slight thirst. The bandages were removed for the first time on the third day after the operation. Ulcerative inflammation was found of the cellular tissue surrounding the wound made in the operation, extending from before over the pectoralis major muscle, but principally behind, above and between the muscles of the shoulder blade. The wound appeared lax, but the general condition of the patient was good.

On the sixth day granulations appeared in the wound, yet the secretion of pus was for the last two days very small. The patient felt himself uncommonly well, when suddenly at 10, A.M., he perceived a slight sense of cold over his entire body, which in a few minutes passed into a violent shivering of half an hour's duration; to this moderate perspiration succeeded, and in three hours the access of fever had passed. A small opening which occurred spon-

taneously shortly after, put an end to the sensation of tension and oppression over the chest and heart.

The one-sixth of a grain of veratrine was immediately administered by the endermic method, in the region of the spine. As soon as this medicine had touched the skin, deprived of epidermis, the patient felt a severe burning sensation in the wound, which hitherto had been free from pain, and which lasted about an hour and a half. In the afternoon delirium; in the evening many attacks of cramp in the muscles of the lower jaw, so that the teeth could be removed from one another half an inch at the utmost; the voice was hoarse, but there was no difficulty of deglutition; after nine o'clock a shivering of half an hour, followed by perspiration, which lasted many hours; pulse very small and frequent.

In the next five days he had seven more shiverings, of various duration, and without a trace of any positive type; perspiration followed all except the last. Whilst the wound was manifestly changed, for a long time for the better, the granulations continued to grow; the abdomen free and without pain; the tongue almost always moist; the respiration free and unimpeded; the collapse was even more remarkable; the delirium continued almost uninterrupted, and sometimes watery diarrhœa was added thereto.

During his last days an inflammatory tumour, at its commencement very painful, and which much impeded the opening of the mouth, formed on the right side of the neck and under the jaw. The patient died twenty-four hours after the last shivering, on the eleventh day after the operation. The endemic application of the veratrine was continued twice daily, one-sixth to one-fourth of a grain, from the appearance of the first shivering till death. The pain which this remedy at first caused in the wound, did not occur again, and only a sensation of burning in a greater or less degree.

Sectio cadaveris.—Cavity of the cranium: between the arachnoid and pia mater, a little gelatinous exudation; the arachnoid slightly opaque; the lateral ventricles filled with clear serum. Cavity of the chest: at the back part of the left lung many abscesses lying superficially, and surrounded by perfectly sound pulmonary tissue: the lungs were congested, but every where crepitating. In the upper lobe of the lung we found a mass as large as a walnut of hard fibre; cartilaginous concentric layers of white colour, and in their intervals a black soft mass; there was an exudation of plastic lymph on the edges of the lungs, but no watery effusion; some old formed bands of lymph between the heart and pericardium: both venæ cavæ were healthy, but from the commencement of the vena cava superior, the veins uniting to form it were thickened, and filled, partly with coagula, and partly with a grumous fluid; the internal jugular vein was in its whole course surrounded by cellular membrane in a state of suppuration, its walls were thick and hard, but the inner coat was white and smooth; the walls of the subclavian vein were less thickened, and were firmly united to the adjacent parts. The morbid change in

them did not begin exactly at the wound, but about one inch distant from it, where many small veins discharged; it (the subclavian) was filled with coagula, and its inner coat was red and rough: the cavity of the abdomen was healthy.

Abscess in the Axilla cured by Seton.—A sailor, ætat. 21, got an abscess in the axilla after a contusion, which extended tolerably widely on the side of the chest. When opened, we discovered that it extended widely under the scapula, above and behind. In order to prevent more fistulæ forming on the walls of the thorax, the bottom of the abscess was exposed as much as possible. The discharge of matter was immense, and was so much increased by the formation of another abscess on the right side of the chest, which had no connexion with the former, that his general health began to suffer materially, and his strength to sink; however, the symptomatic fever gave way, and the state of strength began to improve in proportion as we effected approximation of the walls of the abscess, and the healing of the openings; at length, all were healed except a small opening directly in the axilla, out of which constantly flowed a considerable quantity of matter; through this opening a probe could be passed into a fistulous canal, which led under the scapula backwards and upwards, to the back part of the shoulder; here we made a counter opening, and drew through the whole passage of the fistula (above six inches) a seton. By daily diminishing the seton we accomplished a perfect cure.

Several cases are given of inflammation of joints, in which, after antiphlogistic means being first employed, then either frictions with the ung. tart. ant. or the application of moxa were used; the latter is most strongly recommended. The moment proper for its application in acute cases is that at which the inflammation has attained its greatest height, and begins to decline.

Sciatica with Elongation of the affected Leg.—This case of sciatica, which occurred in a lady of fifty-one years of age, deserves mention on account of the influence exercised on the muscles of the thigh by the nervous affection, by which an elongation of eight lines was produced. Small strips of tartar-emetic plaster, placed along the course of the sciatic nerve, from the post trochanteric region to the outer border of the foot, relieved the nervous pains in some weeks. The patient could make use of the leg with ease, yet she found it was more easily tired than the other, and the elongation suffered no alteration.

“We feel convinced that this will disappear with time, as soon as by moderate and not too excessive exercise of the limbs, the natural tone shall have been restored to the muscles.”

Exostosis of the ball of the foot, which greatly obstructed walking, was observed in two men. One of these cases was complicated with caries of the metatarsal bone. In both cases excision of the joints which form the metatarso-digital joint of the great toe, was performed with perfect success.

Urinary fistula was remarked in a Brazilian sailor. Six months

previously he had been affected with gonorrhœa. On the voyage home from Rio Janeiro, after retention of urine for two days, an opening appeared in the neighbourhood of the right buttock, out of which urine flowed. We found in this situation many very small fistulous passages, which passed obliquely to the perineum and the posterior part of the urethra; exactly before the opening of the fistula was a considerable stricture of the urethra. The urine could be passed only in drops, whilst a portion was passed through the fistulæ. On the 17th day after admission, the narrowing was so much overcome by the use of bougies, that a common silver catheter could be passed with ease into the bladder. When this was effected, the fistulous passages were slit up on a director, and the wound filled with charpie; the catheter was left in. The wounds made in this operation soon filled up, and became very trifling, when on the eleventh day after the operation, the skin in the perineum gave evidence of being undermined in the direction of the urethra; after this was opened, the parts healed rapidly, and some weeks later the patient was able to leave the hospital.

Hydrocele, complicated with an encysted Tumour.—A man of 70, had a hydrocele of the tunica vaginalis of the left side for many years, on which the palliative operation had been very often performed. The cellular tissue of the scrotum had become somewhat hardened, and behind, and at the inferior part a swelling was to be felt like a hardened testicle. As soon as the water was removed by puncturing we recognized in this body, an isolated tumour in the wall of the scrotum, and we extirpated it. It was situated exactly under the dartos tunic: its contents resembled most the coagulum which is found in old cases of apoplexy. The hydrocele returned after the healing of the wound.

Varicocele.—A man æt. 40, whose testis began to become atrophied from the pressure; operation was had recourse to. The first time two threads were drawn through, the second and third time a single thread, and the fourth two threads; the interval between the first and second operations was nine days: between the second and third twenty-four days; between this and fourth, about six weeks. These frequent operations produced no effects requiring the employment of medicine. The enlarged veins did not return entirely to their normal condition; still they retracted so much that in place of their former extraordinarily swollen condition, they were now to the feel soft and empty. The testis had remarkably recovered its volume, and the painful sensation of dragging in the cord is quite gone, so that we leave it to the choice of the patient to wear a suspensory bandage or not.

In a note appended to this case, Fricke promises at some future period to speak more largely on the subject of VARICOCELE, and to shew by what organic process his operation produces a cure of the Varicocele. As a premise he remarks that ordinarily the cure is accomplished not through obliteration of the veins, but by the calling forth of an increased power of contraction, and a pouring forth of organizable lymph in their walls, by which means a condensation and decrease of volume ensues.

Another case proceeding from injury is given, which speaks very highly for the procedure of Herr Fricke. A foreigner from the educated class of society, æt. 40, had sixteen years before suffered from a swelling of the right epididymus, as a consequence of gonorrhœa. Two years previous to admission he was affected with a swelling of the left epididymus, and a varicose enlargement of some veins of the cord. This combination of apparently trifling evils brought with it so much annoyance, as to reduce this otherwise active and cheerful individual to the brink of despair. Every means was attempted by the most renowned physicians, from inunction and the energetic administration of iodine, to the infinitissimal doses of the homœopathist, and simple cold applications and washes, to electricity. For sixteen years he had been obliged constantly to wear a suspensory bandage. In the year 1826 the use of the Marien baths had so much improved the state of the right epididymus, that he was free from any great suffering. Then he gave up the use of all medicines till the swelling coming on in the left epididymus, and the varicocele, again delivered him over to the useless efforts of the physicians. We immediately passed a thread through the most prominent varix of the cord; the reaction was very trifling on the strong constitution of the patient, yet the usual changes took place in the varicose veins. On the fourth day, the patient laid aside at times the suspensory bandage, and on the sixth, altogether; the day after he took a walk. *En passant* we remark, that it seemed to us and to the patient that the right epididymus had decreased in hardness and volume, since passing the thread through the left varicosity.

Twelve days after the operation for the VARICOCELE, we applied, we confess with very little hope of success, our united bandages of sticking plaster. After this had been repeated four times, twice on both testicles, and twice on the left alone, the right epididymus (which the patient called the scape-goat of sixteen years of his life, and the proud memento of medical skill) had returned to its normal condition. A slight induration remained at the head of the left epididymus, with some irritation. Ten days after the treatment by compression had been employed, the patient took a walk of four miles without a suspensory bandage, and when he had not been altogether four weeks, undertook the journey home.

Every trace of the varicocele had disappeared. On his journey, the first eight or ten miles of which lay over a very rugged road, he suffered much; however this ceased entirely after his arrival at home, and four months later, we received a letter from him, containing assurances of his perfect recovery.

In consequence of the success attending the use of the *seton in varicocele*, and the observation that the epididymus, even of the opposite side, appeared to diminish after the seton had been passed, it was thought expedient to try if beneficial results could be obtained in sarcocele from similar treatment. The experiment was tried, and a single thread was conveyed by the needle through the cord, and left there twenty-four hours; slight inflammatory swell-

ing occurred in the trajet of the wound, with the cessation of which, the tumefaction of the testicle and epididymus was positively diminished. The same operation was repeated after fourteen days, and although perfect reduction of the tumour was not obtained, yet it was reduced nearly one-half, and had lost its former hardness. Although not perfectly successful, still his partial success induces the author to determine on a repetition of the operation when opportunity offers.

Amongst cases of INJURY OF THE HEAD, the following occurs : a strong working mason, æt. 40, fell from the roof of a house five stories high ; in falling his head struck against a beam, and on the ground he was received by a tolerably soft heap of sand ; he was taken up senseless, but soon recovered himself, and after some hours he was brought to the hospital. The scalp was pierced by a wound extending from the inner angle of the left eye, to the external occipital protuberance ; the scalp itself was torn loose from the skull as far as the ear, and had fallen down, so that the whole left half of the skull was only covered by pericranium ; the temporal muscle was torn in many strips ; the bone was perfectly uninjured, and the general condition was as little disturbed as the functions of the brain ; the wound was united by the bloody suture ; the treatment observed was antiphlogistic ; in the greater part the wound healed by the first intention, still the lambeau did not adhere to the skull in all parts, and it was necessary to make a counter opening, out of which blood and matter flowed.

On the fourth day the lids of the left eye were exceedingly swollen, and fluctuated ; matter was discharged through an incision.

On the seventh day the wound was flabby, and in some places gangrenous, and the scalp on the right side of the head had become loose from the bone. The general health remained tolerably good, and it was only towards evening that there was a feverish paroxysm ; a solution of oxy-muriate was ordered internally.

On the twelfth day the tongue was dry ; fever more violent ; sensorium unengaged.

Sixteenth day. Patient was senseless, pulse small and weak ; collapse remarkable.

Eighteenth. Died. Although neither symptoms of paralysis, nor of convulsions, had preceded death, yet we expected at the autopsy to find the dura mater separated from the bone, and matter effused on the surface of the brain, but we had to lament that our search after either, mocked our diagnosis and loss of time ; for despite of the most accurate search, neither in the head nor in any of the cavities, was there even the most unimportant change to be found, from the normal state of the organs.

Fracture of the Os Innominatum.—A man of 70, fell from a ladder. A portion, three inches in length, together with the anterior superior spinous process was broken off from the left os innominatum ; his left side was all over bruised and painful, and the olecranon fractured ; not much fever ; the abdomen was not

very tender to the touch ; the piece broken from the crest of the ilium was restored to its proper situation, and the patient recommended to remain quiet ; cold applications ; venesection ; as next day the pain from the hip had extended, twenty-five leeches were applied to the part. Constipation ; *oleum ricini*.

On the ninth day retention of urine, which did not return after the catheter having been once used. Four weeks after his mishap, the patient left his bed, and three weeks later the hospital, when the power of motion, at first a little impeded, was perfectly restored.

Many other cases occur perhaps equally worthy of insertion, but as they may be considered more in the light of pathological contributions, than as containing matters of practical importance, we have omitted them.

S. L. L. B.

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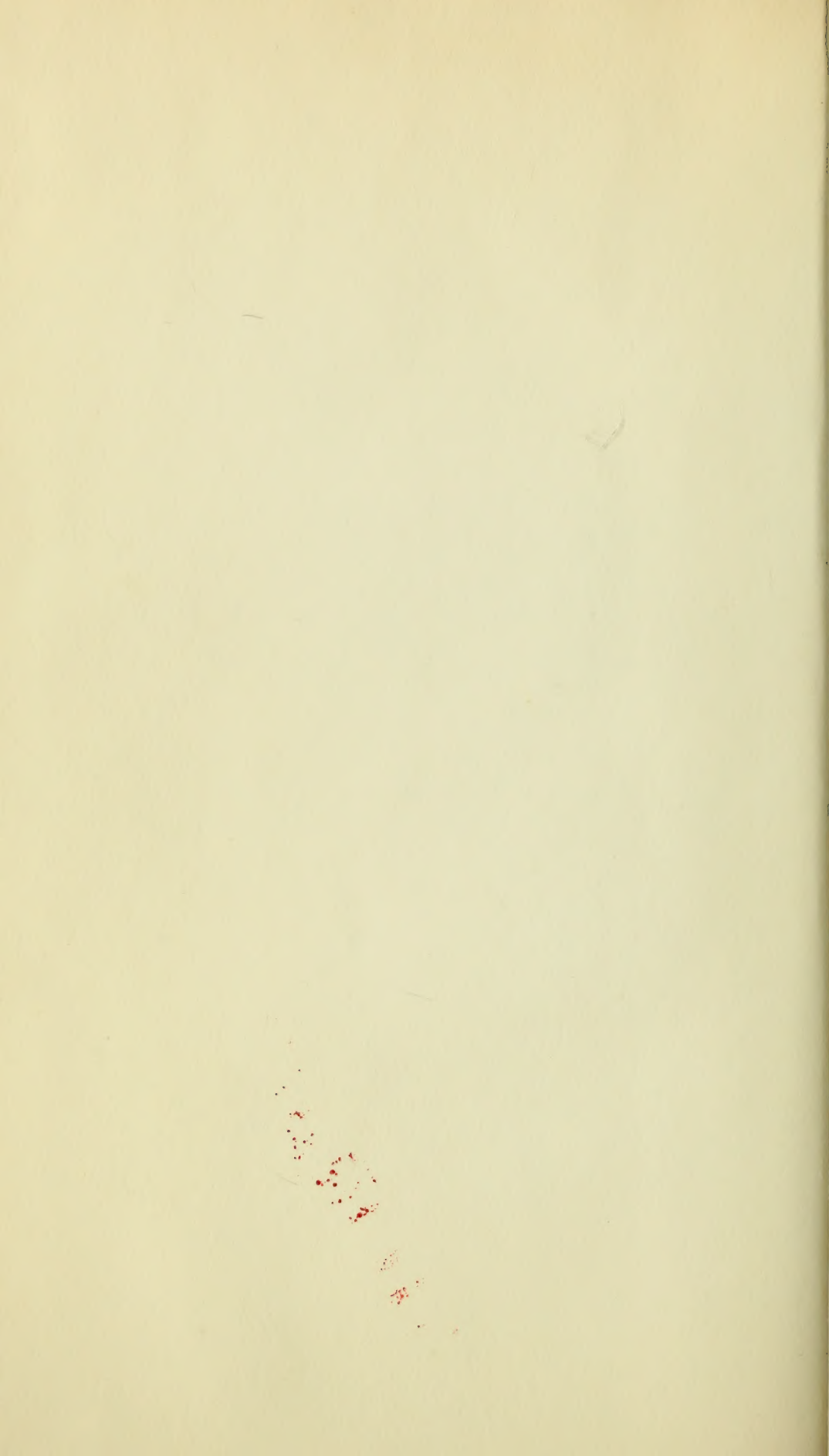
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